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THE PROBLEM OF DIFFERENTIAL FERTILITY

By J. RUMNEY, Ph.D.

THE sharp decline in the birth-rate in Western Europe and the United States has focussed attention almost exclusively on the problem of differential fertility. Many sociologists and biologists seized upon this as outstanding among the perils which might bring about the decline of our civilization. This paper questions their assumptions and indicates the necessity for a more careful and critical study of the old and new materials on the subject. The problem is complex, involving the scrutiny of statistical, genetic, and sociological data; and its significance can only be evaluated after these closely related investigations are completed.

The first investigation is statistical in nature, dealing with birth-, death-, marriage-, and survival-rates, i.e. the varying degrees to which groups contribute to the world's future population. Birth-rates become comparable for different groups only on standardization for age and sex composition. Marriage-rates differ from country to country, and so does the proportion of married women aged 20 to 24, whose influence on the birth-rate is most pronounced. Finally, an exhaustive analysis of the death-rates within these groups must be made and their natural increase calculated. Throughout, refinement and correction must be employed if the calculations are to possess statistical value.

A genetical investigation is then necessary to test the assumption that the groups with differential fertilities are also divided on biological grounds. If the more fertile stocks be the less capable socially (assuming an objective criterion of capability), differential fertility inevitably lowers the capability of a population. If the unskilled workers, for instance, contain numerous inheritable defects that impair their value as citizens, their high effective fertility constitutes a danger to society. The same may be said for the lower fertility of the higher occupational groups, if they are physically and intellectually of greater biological worth. Having established biological differences between the social classes, the next phase of the investigation is to ascertain how these characters are inherited. An investigation which would ascertain whether the characters in question are determined by one or more dominants and recessives is imperative. According to geneticists, if the character in question is transmitted as a Mendelian dominant, the effect of declining fertility is serious and immediate; if it is determined by one or more dominants and

recessives, the effects of differential fertility are not immediate, and the total influence is small. Since the inheritance of most physical and mental characters is complicated, and the exact mechanism is not known yet, the full biological effects of differential fertility await further study.

Finally, a sociological investigation is required. Differential fertility may result in cultural, linguistic, religious, and political changes by substituting one group for another. Territorial expansion and migration raise many problems involving differential fertility. As a factor in explaining cultural changes both in the past and the present, differential fertility should not be neglected.

Before we turn to the facts of differential fertility, it should be noted that the causes bringing it about differ from group to group, and are woven into economic circumstances, histories, and traditions. Religion, social hygiene, and marriage customs play a part. Differential fertility between social classes, in some European countries and the United States, seems to be due to psychological causes, whose origins are to be traced back partly to economic factors, involving the acceptance and diffusion of that pattern of behaviour relating to limitation of families. Some such pattern carrying with it different methods of population control has always existed.(1)

The modern pattern of control became most widespread with the advent of industrialism and urbanization, and the consequent Malthusian and Neomalthusian propaganda, firstly among the upper classes (taking income as the criterion), and then became diffused in other strata. The upper class, accustomed to a life of ease and pleasure, and the professional class, obtaining their maximum earning-power late in life, are disinclined to have many children. Their standards of life must be maintained, and in marginal cases a car is preferred to an additional child. The women, too, in these classes have become increasingly economically independent and emancipated, and are reluctant to compromise this independence by family cares.

That such a view is correct seems to be indicated by the fact that since 1870, when the fall in the birth-rate became most significant, an increasing knowledge in the use of contraceptives has become apparent. This is not to urge that contraception has been the cause of the decline. For an explanation of this social phenomenon we should have to go back to economic conditions

which have tended towards family limitation and the destruction of the feudal character of marriage and the family. Birth-control, from this point of view, is rather a means for achieving certain ends, means which have become widespread owing to cheapness and facility of production, and the growth of industrialism and urbanization. The great concentrations of population lead to an easy dissemination of birth-control methods, and to their adoption as a normal pattern of behaviour. In regions where women work together in factories, such knowledge is quickly exchanged. Moreover, vast quantities of such literature are distributed, and it is estimated that since 1918 more than 15,000,000 books and pamphlets on family limitation have been circulated in Europe and America.

Many writers have urged that biological causes are involved in differential fertility. But the existing data do not warrant any final conclusions. We know very little of the inheritance of the complex of conditions, such as azoospermia, infantilism, and myomata, that may bring about sterility, and their incidence in various social classes. It is said that infantilism is the cause of one-third of the sterile marriages in Germany.(2) Not many satisfactory studies of the distribution of sterility among social classes have been made, but those available show a larger percentage of childless marriages among the upper social classes. According to Verrijn Stuart, the percentage of childless marriages among the poor in the city was 14·1, among the better off 16·2, and among the rich 16·0. The rates for those living in the country were 11·0, 10·9, and 12·6 respectively.(3) According to Rubin and Westgaard, there were in Copenhagen the following number of childless marriages among each hundred marriages that had lasted more than fifteen years—among the merchants and officials it was 12·9, among the small traders it was 13·2, among the teachers and commercial agents 15·0, and among wage earners 11·5.(2) According to Reynolds and Macomber,(3) 10 per cent. of all marriages are involuntarily sterile. This figure is probably too high, since it is calculated that both voluntary and involuntary sterility do not amount to more than 17 per cent. This is the figure suggested by Lotka(4) in a study of American marriage. According to Corrado Gini,(5) sterility increases as peoples become more mature and differential fertility is associated with variations in the strength of the genetic instinct in different races and classes, these races and classes which are farthest along the curve of evolution be-

coming biologically infertile. He does not quite make clear whether this tendency to senescence is inherent in the germ plasm, for elsewhere he writes that "all we know of the causes of reproduction, and on the effects of reproduction, and on the effects of domestication on species leads to believe that a sumptuous and easy life must weaken the reproductive power." His cyclical theory of vitality involves many assumptions, and would imply that significant germinal differences exist in the genetic instinct between social classes and between town and country where differential rates appear. These implications are in no way supported by satisfactory evidence. Recently R. A. Fisher(6) offered some interesting views on this problem. The economic grading of society, according to him, puts in the wealthy classes the children of comparatively infertile parents, for relative infertility would play its part in enabling people to become wealthy. This infertility would be accentuated by the fact of their marrying men of ability, who are also infertile, as may be seen from examining the records of those whose social promotion has been most rapid. This would unite sterility and ability; and the author shows that in fact many studies have indicated that the children of the higher occupational groups are more intelligent than those of the lower groups. There seems to be an element of truth in this theory, although it assumes that sterility is totally an inheritable character, and that the intelligence tests on which he bases his belief in the intellectual superiority of the upper classes have revealed measures of innate ability. In this connection it is interesting to note that one investigator in Switzerland(7) found a positive correlation between a small number of children per family and inferior mental ability. The studies that have been made on the relationship between the size of family and intelligence are conflicting in their results. Thus Willoughby(8) found that the more intelligent mothers exercised a greater restraint on fertility than the less intelligent mothers. Another biological approach to the problem of differential fertility has been to relate fertility rates to the various biotypes in a population. The lower fertility among the upper classes would be due, it is argued, to the preponderance of asthenic types among them, whose sexual reactions and activities are less potent than those of the pyknic types. Boldrini,(9) who made an elaborate investigation of this aspect, has but few cases from which sure conclusions can be drawn, nor has he taken other factors into consideration.

A physiological interpretation of differential fertility is favoured by Raymond Pearl,(10) who is of the opinion that a larger amount of sterility exists in the classes that are well placed environmentally, while the poorer classes on analogy with vegetation and lower animals proliferate in a harsh environment. "It is probable," he writes, "that the very harshness and inadequacy of the human environment, which is the inevitable and, indeed, the concomitant of real poverty, tends directly, and certainly indirectly through physiological reactions, to produce a high birth-rate among human beings. And on the other hand, it seems to me equally clear that the probably super-optimal environment biologically speaking, which even moderate wealth is able to command, tends both directly and indirectly to low fertility, and even a great deal of actual sterility." The latter part of the thesis may be true to some extent, and as early as 1843 Thomas Doubleday, in his *True Law of Population*, expressed a similar view. This view, however, would be difficult to reconcile with some other investigations of Pearl. His logistic theory of population where increasing density leads to a decline in growth could hardly be applicable to the wealthier classes, of whom we certainly cannot predicate density. The first part of the thesis does not appear plausible in view of the evidence that points to primitive man having a low fecundity, and of the general relationship of growth of population with the increase in the food supply and economic resources.

An increasing amount of work is being done on these physiological aspects which may throw light on some of the above-mentioned problems. The relationship between diet and fertility and the importance of vitamin E is being investigated. Thus it is known that a shortage of calcium in foods may lead to sterility. This, however, would not explain the lower fertility of the upper classes, since their diet is varied and would not lack calcium. Such problems as the frequency of ovulation and viability of the sperm are receiving attention, as are the forms of sexual activity among different social groups,(11) and the comparative frequency of abortion and venereal diseases among them. It is not improbable that the increasing strain of modern life, especially urban life, is affecting the natural fertility of the population in a way we do not understand. But in general it may be concluded that the economic factors of urbanization and industrialization we stressed above have been most potent in bringing about differential fertility by favouring the acceptance of patterns of birth-control behaviour,

firstly among the wealthier and professional classes and then becoming diffused among the other classes. Biological and physiological factors have been, if at all, only of secondary importance.

The facts of differential fertility cannot be denied. Whether we take races, nations, social classes, or family lines, we find that they are increasing and have increased at different rates. During the last few centuries it seems that the proportion of Alpines increased more rapidly in East and South Germany and throughout France than the other racial elements, thus altering the racial composition of Europe. The annual increase per 1,000 is different for the white, brown, black, and yellow races. Since 1850 Germans and Italians have shown a more rapid rate of increase than Frenchmen. In the United States the French Canadians, Italians, and Poles are multiplying in some cases more rapidly than the native Americans.

Whether such racial or national substitution is to be welcomed depends on whether one believes in the superiority of one race or nation over another, and the preference one may have for a particular national or cultural tradition. As no objective criteria exist for arriving at a hierarchy of races or cultures, it is impossible to say whether such differential reproductivity is good or bad. To Miss Elderton(12) it is bad. Writing of the Bradlaugh trial, which she takes as the starting-point of the decline in the birth-rate, she exclaims: "The gravity of the Bradlaugh trial, notorious as it was, was far from recognized at the time; it legitimized the teaching of practical methods for the limitation of the family, and within thirty years that teaching has revolutionized the sexual habits of the English people." It has destroyed the "pressure which carried the English population as a colonizing force into every quarter of the globe, and it may be that coming centuries will recognize the Bradlaugh trial as the knell of the British Colonial Empire, and as the real summons to Slavs, Chinese, and other fertile races to occupy the spare places of the earth." The racial changes coming about in this way do not seem to be significant, since slight, if any, mental differences exist between races. But important cultural and linguistic changes are taking place. Some languages are spreading more rapidly than others, some religions are gaining adherents more rapidly than others, and in some countries the pressure of population is leading to political complications.

Attention has been mainly focussed on differential fertility

among classes, and many writers assert that the extremely low birth-rate of the upper strata of society and the high birth-rate of the lower are leading to a deterioration of the population. It is this fact, according to one writer, which threatens England with racial depletion and social decay.(13) Whether this is so we shall examine later. But in many discussions an important fact is generally ignored—that the present state of affairs may only be temporary, and that in the past the situation was different in different parts of the world. A lower procreation of the upper classes does not seem to have occurred in India, Siam, and China. In present-day China, middle-class families are largest. In England, before 1830, there is some evidence to show that differential fertility was in favour of the better situated classes. Dr. Mabel Buer(14) believes that this was owing to a level birth-rate throughout the social classes and a lower death-rate among the better situated. Before 1750, on the other hand, they were contributing less, the birth-rate being lower and the death-rate higher as a result of the numerous wars they were engaged in.

In the tenth century the fecundity of families in Europe does not seem to have been less among the nobility than among the peasants.(15) Differential fertility is not, therefore, a modern phenomenon as many suppose, nor are its results the same from age to age. But it is this factor, among others, that helps to explain the disappearance or diminution of certain groups. Von Sradonitz(16) in his study of the German nobility showed that whereas in 1200 there existed 20,000 knightly houses, only 800 now remain. Professor Savorgnan,(16) studying the number of births in the royal, princely, and ducal families in Germany, France, Belgium, Scotland, and Ireland, obtained averages which were always lower than those of the population as a whole. The royal families had a higher average than the nobility. Kleine(16) states that in 1870, for 2,062 married counts there were not less than 704 who remained single up to 36 years of age. Before the World War the average number of children per family among 10,000 German officers was less than three. The importance of such biological and social extinction or diminution of certain social groups is in the impetus it gives to vertical social mobility and thereby to significant changes in the structure of society.

In the latest decennial supplement of the British Registrar-General's Report for 1921, and published in 1928, a comparison is made of the legitimate fertility of the social classes for 1911 and

1921 per 1,000 married males under 55 years of age. The effective fertility of the five main social groups into which the population is divided increases as we descend in the occupational scale, both for 1911 and 1921, although by the latter date the birth-rate had fallen in all the groups. Results similar to these were found in Italy and the United States. According to the U.S. Census of 1911 the following were groups with high fertility: Coal miners, other miners, farm labourers, farmers, building labourers, railway labourers, railway construction foremen, metal moulders, and factory labourers. The average number of children in these occupations was 4·8. The low fertility groups were as follows, in order of increasing fertility: Physicians, technical engineers, lawyers, book-keepers, bankers, teachers, agents, canvassers, factory officials, insurance agents, clerks in offices, and real estate agents. The average in these eleven occupations was 2·6 children.

In Germany and Holland it seems that the position is nearly equal between the social classes, and in Stockholm differential fertility is in favour of the higher economic classes, their fertility being 45 per cent. higher than that of the industrial class.(17) These differences from place to place indicate that the present position in England and in other countries may only be a temporary one, and certainly do not justify the pessimism of some who have written on this subject. A comparison of present birth-rates with those of some decades past among social groups shows a striking equalization in the rates. Sanders(18) in his Rotterdam study, comparing marriages contracted between 1879 and 1893 with those between 1904 and 1913, found that the number of children born had declined 19 per cent. among the higher intellectuals, and by approximately twice as much among shop-keepers, skilled and unskilled labourers. Wolff(19) has some interesting figures for Berlin, showing that whereas in 1909 the difference in the birth-rate between a wealthy and a poor quarter of the city was 16·6 it had fallen to 1·4 in 1926.

Besides a differential fertility between races, nations, and classes, it is exhibited in family strains within a group. Pearson has shown that in England, Denmark, and New South Wales, from 50 per cent. to 60 per cent. of those born leave no children. Of those who have children, some have many, some few, and some the average number. It was found that 25 per cent. of the families with the largest number of children have one-half of all the children; and since the parents of these families themselves

came from a small number of those born in their generation, it could be shown that one-eighth to one-sixth of those born in one generation became the progenitors of the next generation. Theilhaber(20) found that of one hundred Jews of both sexes of 20 years old and over, a quarter are unmarried and another quarter childless. Of the remaining half, two-thirds have either one or at most two children, while the other third has two or more.

The size of the family has experienced great changes in the last few decades. Havelock Ellis(21) writes: "There can be no doubt whatever that from the eighteenth to the twentieth century there has been a steady decrease in the size of the American family. Franklin estimated that the number of children to a married couple was eight. Genealogical records show that while the number in the seventeenth century was nearly seven, it was over six at the end of the eighteenth century. Since then, as Englemann and others have shown, there has been a steady decrease in the size of the family, and in the earlier years of the nineteenth century there were between four and five children to the marriage, while at the end of the century the number had fallen to between four and a little over one." Theilhaber(20) calculated the number of children per marriage among Prussian Jews for each decade since 1820, and observed a similar decline. From 1820 to 1830 the number was 5·19. This had fallen to 2·40 in the years 1906–11. According to Salaman(22) the parents of to-day in Anglo-Jewry have 2·7 children. Their great-great-grandparents had 7·0. Individual families show the same trend. The Rothschild family have 2·3 children per family in this generation. But four generations back they had 5·2.

We have thus far discussed the kinds of differential fertility that exist. We will now turn our attention to those factors that seem to be of the greatest importance in bringing about differential fertility. The causal rôle, however, is not always clear in the correlations that have been found, say, between education or religion and differential fertility, for the reason that other factors were not always excluded, and the conditions were not always the same.

Turning to the religious factor, we find that in England at the present time Catholic districts have a higher birth-rate than the Protestant ones. The Society of Friends had the lowest, their annual births amounting to 148 and their deaths to 288. There is annual loss of 140 members.(23) In the Borough of Stepney, where

a large Jewish population resides, the birth-rate in 1913 was 29·6 per 1,000, whilst that for the whole of London was 24·5.(24) Those towns in England showed the smallest decrease in the birth-rate where Jews or Roman Catholics were numerous.(25) The effect of religion is not, however, uniform, but differs from place to place. In Bavaria the Jews had the smallest number of children per marriage, the Protestants coming next, and the Catholics having the highest rate.(26) Among German Jews, according to Theilhaber,(20) the birth-rate has fallen so sharply that their ultimate extinction within two or three generations is predicted, if this and their other biostatic characters remain unchanged. Whereas in the year 1875 the births per 1,000 Jews was 32, it had sunk in 1920 to 17, having decreased almost one-half in 45 years. The decline in religious sentiment has, of course, been only one among many other factors to account for this state of affairs. Salaman(22) found that in the East and North London, 57 orthodox Jewish families had 415 children, i.e. 7·28 per family, while in the West End, where the wealthier and less religious Jews live, 370 families had 1,600 children, an average of 4·3 children.

In the past religion was a much more important factor in affecting the survival-rates of different groups. "A people whose religion enjoins them to be fruitful and multiply will tend to prevail over others whose propagation is not enforced by religious sanctions. Religion may prohibit or condone practices of infantilism and abortion. They may intensify the warlike propensities of man, and powerfully stimulate group loyalty, or they may lead to pacifism and passive resignation that makes their adherents an easy prey to more intelligent foes. They may prohibit or sanction slavery, forbid or enjoin marriage outside the tribe, and in a variety of other ways influence the conduct of peoples on matters that vitally affect their racial welfare."(27) The correlation between religious beliefs and a high birth-rate, it is argued, is conclusive proof of the biological value of religious beliefs.(28) In the present time religion is losing ground in the face of stronger forces. Even in Italy, a stronghold of Catholicism, the birth-rate is falling rapidly, for Malthus is more powerful than Mussolini. Sanders(18) rightly says that the Church loses its influence at the threshold of the bedroom.

Education is of some importance in affecting differential fertility, mainly because of its close relationship to occupational

differentiation. With this latter aspect we will deal later. Ross and Baber(29) made an interesting study showing not only the differences in the present generation between the educated groups, college, high school, elementary, and the illiterate, but also their differences in the past. Both for the past and present generations, the average number of children per family declines the more educated are the parents.

At Bryn Mawr College there graduated between 1816 and 1913, 2,119 B.A.s who have been mothers to only 263 girls to take their place in the next generation. From other studies we can say that little more than 50 per cent. of the graduates of women's colleges, and only about 75 per cent. of the graduates in the men's colleges, marry in the United States. Phillips found that the number of children per married graduate of Harvard and Yale fell from 3·25 in the decade ending 1860 to a little over 2 in the decade ending 1890. Cattell, in his study of men of science, found that 261 completed families had an average number of 1·88 children per family, of whom about 2 per cent. died before maturity.(30) In Germany a study of the fertility of 3,500 professors showed that this class could just replace its numbers.(31) Results similar to the above have been found in England and France. But whether the facts that a Harvard graduate fathers only three-quarters of a son, and the Vassar graduate mothers only half of a daughter, are leading to racial deterioration depends on our estimate of these graduates. If they are a selected group as regards innate ability, their infertility will affect the stock of ability within the community.

Urbanization and industrialization with its resultant occupational differentiation are the most important factors affecting differential fertility. Everywhere cities have a lower birth-rate than the country, if correction is made for their differing age and sex compositions. There is some evidence, however, that the lowest social groups in the city have a higher birth-rate than the countryside. Very few, if any, modern cities are able to maintain their populations, and in general the larger a city is the lower is its birth-rate. Per 1,000 women 15 to 50, there were the following number of births: 1909–1912, Berlin, 112; all cities, 173; rural areas, 240. For the Netherlands the birth-rate per 1,000 population was as follows for the years 1926–28:(3)

Size of Towns:	over 100,000	50–100,000	20–50,000	5–20,000	under 5,000
	19·1	21·0	23·6	25·4	26·0

Similar figures obtain for other countries. It is in the city, and especially the larger city, that information as to contraceptives is easily procurable; abortions are frequent; old mores and customs quickly break down, and social life becomes individualized and atomized.

Within the city differential fertility has its most glaring contrasts in the different city sections. Extremes and contrasts are typical of the city—munificence and poverty, learnedness and illiterateness, highly skilled work and casual labour. Bertillon(32) collected some interesting figures for Paris, Berlin, and Vienna in the eighties. In every case the more comfortable and wealthier the section the lower was the birth-rate. In London Heron(33) found in 1907 that the correlation coefficient between overcrowding and a high birth-rate was 0·697, that between the proportion of males engaged in the lowest type of labour and a high birth-rate was 0·517, that between the presence of pawnbrokers and allied trades in a district and a high birth-rate was 0·618, and that between the amount of child employment and a high birth-rate was 0·660. Similar results were found by Miss Elderton in her report on the English birth-rate in 1914,(12) and by Webb,(34) who found that the most thrifty sections of cities had the lowest birth-rate. But, as we pointed out before, this state of affairs is not universal, and recent figures show greater equalization of the birth-rate in the different sections of the city.(19) In a number of cases the economically better-off classes are holding their own and have a higher birth-rate.

Industrialization and the elaborate division of labour bring about important social differences as typified in the factory worker and the farm labourer, the professional man and the merchant, each type reacting in its own way to economic pressure and manifesting its own family mores, number of children, etc. In the United States Whelpton(35) calculated that the number of children ages 0–4 per 1,000 women 16–44 years of age was, in 1920, for agricultural states 629, for semi-industrial states 534, and for industrial states 458. Warren S. Thompson, in a recent study, deals thoroughly with some of these aspects, and with the differential rate of natural increase in the population of the United States.(36)

We have referred above to the differential fertility among different occupations in discussing the results of the Census reports for Great Britain and the United States. In France a

study of 1906 based on the Census showed that the number of children, where the marriage lasted 25 years or more, was 3·03 per family among clerks, 3·06 among their employers, 4·09 among labourers, and 4·80 among sailors and fishermen.(16) This situation is general in European countries, but as Sydenstriker(37) has observed in a careful study, the inverse relation between occupation and fertility is not as precise as that between social class and fertility. There are, for example, highly significant differences among occupational groups which have the same income level.

These facts of differential fertility do not, unless certain unproved assumptions are made, lead to the conclusion that dysgenic influences are undermining society. The stratification that exists between the social classes seems social rather than biological in character, position in life not being necessarily an indication of good biological heredity. The studies that have been made as to the relationship between social class and a number of physical characters, such as head form, cranial capacity, and size of head, brain weight, stature, and general physique, are unsatisfactory and inconclusive. In this connection it is interesting to note that in the reports of the English National Service Boards the miners, and agriculturists, groups with high fertility, had the best physique in the country. Nor do any convincing studies exist that prove a relationship between mental worth and social grouping. The differences are slight and overlap. The superiority of the children whose fathers are in the better paid occupations is probably due to their superior environment, and to the fact that they mature physically earlier. Some studies show that certain mortality- and sickness-rates and proportions of individuals affected by some organic impairments are higher for the lower classes than the upper.

Socially, of course, it is undesirable that the poorer class should have more children than the wealthier and better educated classes, who could give greater care and attention to them. The solution, however, lies in raising the economic standard of these classes, and allowing them every opportunity to get acquainted with methods of family limitation and raising their level of education. The net effect of the birth clinics has been to reduce the birth-rate among the unskilled in comparison with the rates for all other classes. This is shown by Mrs. Robinson in her analysis of a number of birth control-clinics.(38) The commonly heard

argument that the wealthy classes have small families because of the terrible burden of taxation they have to bear, in order to support the increasing fertility of mentally and physically incapable individuals, is unsound for the simple reason that the weight of taxation is due mainly to the vast expenditure on war and military preparedness. Nor should it be forgotten that family limitation, characteristic of the wealthier classes, may depend, to some extent, on qualities socially undesirable, such as the preference for luxury to family affections.

The crux of the whole problem relating to differential fertility is that dealing with subnormal and cacogenic groups, especially the feeble-minded. No one reading the recent report of the Mental Deficiency Committee of the Board of Education, 1929, or the Report of the Departmental Committee on Sterilization, 1934, can deny the gravity of the situation in England where approximately 300,000 mental defectives exist. We are there told that "the families of the subnormal groups remain as large as hitherto, while those of the better social classes are steadily diminishing in size." In the report of 1928 the medical officer of Nottingham is of the opinion that "80 per cent. of the defectives come of defective families whose average number of living children is 5·43."(39) Carr-Saunders(40), however, maintains that "Unless those defectives who are not under any kind of control or supervision are much more fertile than the population as a whole, the entire group of defectives is not making a contribution to the next generation, which in proportion to their numbers is equal to that made by the remainder of the population."

A number of investigations have determined the number of children per family in feeble-minded as compared with normal families. Research into the family pedigree of 310 inmates of the Vineland Training School gave these figures: Both parents feeble-minded, 5·2 children per family; one parent feeble-minded, 4·6; both parents normal, 4·7. Tredgold(41) examined feeble-minded families and found an average of 7·4 children per couple, and 91 respectable couples of the labouring class where the average was 3·7. Rice, too, maintains that the average size of the family, when both parents are feeble-minded, is higher than in the normal family. Wallin, in 1924, studying 4,324 children, found that families with normal and supernormal offspring averaged 3·4 children, while those of the feeble-minded averaged 5·46. He also found that while only 4·76 of the former families had eight or

more children, 26·08 per cent. of the feeble-minded had this number. An investigation in London by Lidbetter disclosed an average of seven per family among defectives. Dayton(42) studied 10,445 retarded children in Massachussets and found that the families from which these children came were larger than the families in the general population, and about twice as large as families from which gifted children or college students came. According to Green,(43) the average for such families was 6·43, which was more than twice as large as that of Michigan State College married alumni for a roughly comparable period. The mortality-rate was the same.

For other subnormal groups the following fertility-rates were obtained:

FERTILITY IN PATHOLOGICAL AND NORMAL STOCKS(44)

Pathological	Nature of Marriage	Average Size of Family
Deaf mutes (England: Schuster)	Probably completed	6·2
Deaf mutes (America: Schuster)	Probably completed	6·1
Tuberculous stock. (Pearson)	Probably completed	5·7
Albinotic stock. (Pearson)	Probably completed	5·9
Insane stock. (Heron)	Probably completed	6·0
Edinburgh degenerates. (Eugenics Lab.) ..	Incomplete	6·1
Criminals. (Goring)	Completed	6·6
Normal family records. (Pearson)		5·3
English intellectual class. (Pearson) ..		4·7
Working class (New S. Wales: Powys) ..		5·3
Danish professional class. (Westgaard) ..	15 years at least	5·2
Danish working class. (Westgaard) ..	25 years at least	5·3
Edinburgh normal artisans. (Eugenics Lab.)	Incomplete	5·9
London normal artisan. (Eugenics Lab.) ..	Incomplete	5·1
Average of pathological stocks		6·2
Average of normal stocks		5·3

The Vineland Training School found neuropaths to have families of 5·7 children, and those with hereditary deficiency 4·5. Ross and Baber,(29) whose study we mentioned before, found that the mental defective, alcoholic, and immoral families are bringing children into the world twice as fast as normal families. A hundred dependent families had 6·49 children, whilst the average size of the control group was 3·35. If the infertile families are included in the latter, the average was 2·8. Alcoholics in

America had 5·5 per family, non-alcoholics, 4·1. Lidbetter(16) in his study of pauperism in London, including insane, blind, imbecile, epileptics, and tuberculous, found an average of 8·9 per family. March,(16) on the other hand, showed that in France in 1916 among the persons who were a charge to the public, paupers, vagabonds, persons found in hospitals and prisons, the number of children per family was 2·85, whilst among the working classes it was 2·95, among the salaried classes 2·90, and among the employing classes 3·58. Gini(16) maintains that "mistaken methods of calculation have led to the opinion that some of the classes of physical, mental, and moral defectives (consumptives, criminal, and insane) had a distinctly higher average number of children than the normal. From statistics in New South Wales, the average number of children born, and of children surviving their parents, is distinctly below that for the total number of deceased married people." Goring(45) in his analysis of 3,000 convicts concluded that the ratio of absolute fertility of the convicts and the community was as five is to eight. The number of children was generally small, as the wives desert their husbands after marriage.

All these groups should be considered as distinct from the general problem of differential fertility, and it is simply a confusion of terms to compare their fertility with that of the general population or, as some have done, with that of the professional classes. Some of the above types, e.g. the congenital idiots, seem to be equally distributed in the social strata. From the biological point of view it is by no means certain that they constitute a menace to the general population. Even if it is true that mental defectives are increasing more rapidly, it does not follow that the whole population is deteriorating mentally. Nor should it be forgotten that civilization is ever exacting higher standards of adaption, so that in a simpler environment many who would be reasonably adjusted find this increasingly difficult.

As regards the mental defectives, there is no evidence of a widespread admixture, or for national degeneracy, especially if it is true that they form a close group exhibiting inbreeding and assortive mating, a higher mortality, and a shorter duration of life. According to Holmes,(46) "among the lower forms of mental defectives which are really pathological in origin, we find a high death-rate." Clark and Stowell(47) found that the mortality of feeble-minded idiots to be double that of idiots and imbeciles, and to be eight times that of normal. Of the insane, Gosney and

Popenoe(47) write: "In California the fecundity of the insane is cut down, partly by hospital residence, partly by voluntary action on their part, partly because their lives are shortened by their diseases. The life expectation of the adult insane is, perhaps, no more than a half that of normal individuals." Barr(47) declares that the death-rate of strains showing hereditary insanity to be notably above normal. For other groups, especially the alcoholic, the death-rate is high.

It must be remembered that no agreement exists as to the amount of familial or hereditary feeble-mindedness. Estimates range from 10 to 80 per cent.; and whereas eugenicists favour the latter figure, clinicians who are thoroughly acquainted with each particular case adopt the former percentage as more likely. And if this character depends on the co-operation of several recessive genes, their reduction and elimination would be no easy or quickly solved task. It should also be borne in mind that the families like the Jukes, Kallikaks, Zeros, etc., are not representative of similarly dependent groups. These groups do not marry, separate, and re-marry always at will, and always producing their kind, whether married or single. An investigation showed that the fertile women of the Jukes averaged 4·3 children each, and those of the Nams 4. These figures are not higher than those for normal families of the same social standing, and in general many of these comparisons are vitiated because they do not take the occupational or social status of the compared groups into consideration. It is interesting to note that whereas 1,394 descendants of the Edwards have been identified, only 1,200 of the Jukes were discovered.(48)

Until we know more of the type of inheritance of feeble-mindedness and of the mathematical effects of selection on the composition of the people, there is no short cut to a solution of the problem. Sterilization and other eugenic measures, however necessary, will not eliminate the need for institutional care and for training the feeble-minded in some occupations. In this way they can be of some social value. Thus in 1928 an investigation into 1,056 youths of 18 years of age, who were after-care cases of special schools for mental defectives in London, reported that 81 were gainfully employed, 128 were employable though temporarily out of work, and 88 only were unemployable. In many other cases defectives were trained to gardening, labouring, carpentering, furniture-making, weaving, bricklaying, painting, laundry-work, etc.

To sum up this problem we can do no better than give the

words of Hogben, the well-known biologist(49): "It is probable that extremes of intellectual accomplishment or defects are significantly determined by genetic variation. It is highly unlikely that extreme types of defectives are reproducing disproportionately. It is also doubtful whether genius has ever been biologically fertile. Between the two extremes there is probably a neutral ground in which somatic variability plays a larger part than genetic differences in determining social behaviour. At present it is impossible to assess with precision the mean genotypic endowment of different social groups, whether occupational or racial. Even if it were, the precise significance of the mean would be problematical."

There is one other problem that occurs in connection with the falling birth-rate and differential fertility. It has been assumed by a number of sociologists like Lapouge, Sorokin, and by biologists like Pearson, Snow, Lenz, Schallmayer, and Ploetz that "a low birth-rate accompanied by a low mortality means an elimination or weakening of the factor of natural selection; in other words, a survival of the weaklings who would be eliminated under conditions of high mortality which accompanies a high birth-rate. Under such conditions the population of such a society is likely to be composed more of the progeny of weaklings and less superior people."(50) This assumption is incorrect. There is no empirical evidence that racial deterioration is ensuing as a result of interference with natural selection. As regards infant mortality, it was shown by Brownlee,(51) Prinzing,(52) and Rosenfeld(53) that, where a high infant mortality exists, the higher is the mortality in the following years. What is indicated is that where good medical attention prevails, children who survive the first year will live in succeeding years. Where medical facilities are lacking, each succeeding year will show a high infant mortality. The view that a higher infant mortality means a larger proportion fit for military service has no basis in fact, and the hypothesis that many tuberculous children now survive only later to swell the mortality from this disease is unfounded.

The denial of the importance of differential fertility on biological grounds does not mean a denial of its importance on sociological grounds. Indeed, no student must neglect the metabolism of population changes and the accompanying social changes in culture, religion, language, and politics. War and migrations of peoples have been of primary importance in social development.

In differential fertility a valuable clue is obtained for tracing the ever-recurrent disturbances in law and custom, and the new equilibriums that consequently arise.

As regards the declining birth-rate, it is probable that this problem will soon once again take the centre of the stage. Within the next fifty years or so, when the full effects of voluntary limitation of families will be apparent to everyone, social and governmental propaganda will probably be directed towards ensuring a growing population; for by that time the prognostications of Bowley, Gini, and Kuczynski will have come about, and populations will have begun to decline, and perhaps very rapidly. Whether when that phase of the population cycle is upon us propaganda will be powerful enough to reverse the situation, it is impossible to tell. The modern pattern of behaviour relating to limitation of families has become so widespread and so ingrained that it will be difficult to alter it. Certainly radical economic changes will be necessary if people are to have full scope for the realization of those values which find their highest expression in children and family life. Present-day tendencies do not favour these values. But if a change is to take place which will make it possible for people to have children, limitation occurring only because of medical and not economic considerations, that change will involve urbanization and industrialization as we know them now. For these two factors are most closely related to the falling birth-rate, and to the diffusion of knowledge of contraceptives. Means are always found of limiting families when circumstances necessitate it, although children are always desired. When the circumstances are removed, especially the depressing effect of modern economic life, such desires will be fulfilled. Then perhaps population will once more begin to grow.

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FAMILY LIMITATION IN POLAND

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Limitation amongst Medical Practitioners

1. IN number 3, vol. 1, of *Population* there were analysed by Professor Stefan Szulc the researches on Differential Fertility in Poland. There was also cited the text of the questionnaire on which the researches were based (*Population*, vol. 1, number 3, pp. 16 and 17).

One of the examined groups was that of physicians. The conditions existing among physicians as far as Family Limitation is concerned are especially interesting and ought to be discussed in detail, all the more since the information supplied contained answers to questions on special matters (e.g. applying of contraceptives, etc.), as well as other very personal observations.

About 300 replies were received to the questionnaire, of which 246 containing information on all the items of the questionnaire were worked out. Out of these 246 families, in 216 cases the husband was a doctor, in 14 the wife, in 36 both partners (including seven dental surgeons). In regard to religion, 196 (74·1 per cent.) replies were received from Christians, and 72 (26·9) of Mosaic creed. In some instances the informer stated that he was a disbeliever, although according to his documents he belonged to the Roman Catholic or Mosaic creed.

The questionnaires were anonymous; in some cases, however, the informants have supplied their names, some others have even underlined the necessity of publicity. In a small number of cases no replies were entered as to the "drastic" questions, such as the use of contraceptives, e.g. in one questionnaire we read: "Some of the questions are too drastic and unnecessary, they should be removed, otherwise the whole work which must be regarded as useful will be ignored by all." Opposite points of view were also expressed. In some questionnaires information was included which was not asked for; for instance, what modes of procedure should be used in *coitus interruptus* to bring it as near as possible to the normal coital act, or giving different details of marital relations. In quite a number of cases the replies were given with exceptional sincerity, and details quoted which are usually given only in a consultation-room; sometimes they had the character of solemnity and gravity, almost as at confession.

It should be added that the majority of our informants belonged to the supporters of the idea of family limitation in general, not only in regard to their own families. Let us cite an example: "To my mind no family should have more than one or two children. This would prevent unemployment and overcrowding in many professions. Family life would be easier. Countries with a low birth-rate serve as an example in this respect. They are not suffering to the same extent from unemployment. On account of these facts, I am everywhere making propaganda for birth-control."

Similar views were expressed in many questionnaires, and our informants indicated that they are willingly giving advice in this respect to their patients. Opposite points of view were also encountered, although they were not so numerous.

2. The first question which has been worked out was the following: What is the attitude of the medical profession towards the size of the family, how many children are desired? It should be added that the question was not included in the questionnaire in this form; however, one could work it out on the basis of replies to other questions, and on information included in the item "remarks."

It can be said without any exaggeration that medical men are not inclined to have large or even middle-size families. "We have two children, for we wanted to have as many," says one of the informants, and this statement could be used as a motto of our investigation. It should be added that even two children are sometimes considered too much, and that in many families the number of children exceeds that which has been wanted. In general, doctors would like to have one or two children, or remain childless. One of the doctors residing in Warsaw, generalizing his observations, says that on an average families of physicians of a moderate income prefer to have one child, *one Kindsystem*, and the minority remains true to the principle *ohne Kindersystem*.

Some of the informants clearly indicate that they have two or three children only, on account of the failure of contraceptives, and abortion was not induced, as the procedure was regarded as detrimental to health of the wife, or unethical. Examples: "We did not want to have more than two children; even the second child was conceived in spite of *coitus interruptus*." "After the birth of the second child we did not want to have any more children for a long period, but contraceptives (tabloids) failed." "After the

birth of the third child my wife became very nervous, children were giving much trouble, and she did not want to have any more."

Many other examples of this kind could be quoted; in point of fact, directly or indirectly this idea is expressed almost in all questionnaires, as it will be seen in many quotations below. From the whole material at hand only in few instances it was expressly stated that the informant has willingly followed the law of nature. Here is, for example, a statement of a doctor who has never applied any contraceptives: "Following the birth of the sixth child, once or twice *coitus interruptus* was tried, and we both came to the conclusion that this is filth." No attempts at abortion were made. Further, the same man adds: "After the birth of the fourth child my wife in a moment of depression took once or twice a hot bath, without result. Being a fervent Catholic she repented it afterwards." There were nine children in this family. Only two more examples of this kind could be found in our questionnaires.

Apparently some of the informants have not used any contraceptives for a prolonged period of time. But was it never tried?

3. Explanations given as to the cause of limitation of conception vary widely from one questionnaire to the other. They can be, however, combined into three groups. The first and numerically the most important one includes material considerations (difficult housing conditions, low income, and the like), the desire to avoid trouble and expense, the tendency to lead a quiet and comfortable life. The second in order of importance is based on the care for the proper education of children. Finally, the third group is connected with health indications, chiefly with the care for the health of the wife on the part of the husband, or of herself. Some of the replies could not be classified into any of the above-named groups, and were dealt with separately. Let us quote some examples illustrating all three groups.

"Although I have a post, my income is hardly sufficient to maintain a family of three, under the present conditions, and we can't have a second child." "The limitation of family to one child is a consequence of the War, and the destruction of the property by fire. After the War we could not get proper quarters during a period of seven years. Finally, the apartment has been found, but we had to pay to the agent a horrible sum of $1.800 for the

'entrance key.' This sum is still a heavy burden on our budget." "We consider that on account of the financial crisis one child is sufficient. If our conditions would improve, probably we would permit ourselves a second one." "Contraceptives were used, chiefly owing to difficult times; abortion was induced during the War and the invasion of Bolsheviks." "My wife made an artificial abortion at the time when my income was low and our apartment consisted of two rooms only. My wife and I liked the idea of having a second child for educational purposes; a larger number was undesirable, for although my income is much better now, we can't give a proper education to several children."

In the remarks the indication has often been seen that family limitation was the result of the War and its aftermath, lack of security, poverty, long absence of husbands from home, etc. We have entered all these replies into the group "limitation of family on account of material considerations." Financial difficulties have not been the chief reason here, they were, however, the predominant cause.

Amongst the material considerations the first place is taken by housing conditions. This cause is often given as a hindrance for the increase of the size of the family, sometimes even for the conception of the first child. "The tendency of limitation of the number of children results from difficult housing conditions. Our apartment is composed of seven rooms; in point of fact, however, only two are at our disposal, a small sleeping-room and a dining-room. Out of the remaining five rooms three are used for professional purposes, the fourth is occupied by my step-mother, the fifth by a lodger." "Frequent abortions encountered at present are due to unsatisfactory housing conditions, and the lack of proper accommodation for children." "The first child was born after ten years of married life, and this for the following reasons: (1) moving to and fro on account of military service up to 1924; (2) want of satisfactory housing conditions; (3) ill health of the wife."

In view of the importance of housing conditions for the normal development of family life, a table was prepared indicating housing conditions of our informants (see Table I). The number of rooms includes the kitchen. The difficulty in interpreting these figures is the result of the fact that the table includes families of doctors residing in large towns as well as in small towns, where the whole income depends on private practice, which in turn

requires proper accommodation. In this connection two points must be emphasized: the practising physician must have at least two rooms for professional purposes, and a minimum of two rooms for his family.

In consequence, less than five rooms per family should be considered as entirely insufficient. Table I indicates, however, that the percentage of apartments of inadequate size amounts to 26·6 per cent.; 50 per cent. of doctors have apartments where the number of rooms exceeds five. A certain percentage of doctors are

TABLE I

HOUSING CONDITIONS OF THE MEDICAL PROFESSION

Number of Rooms	Number of Persons								Total
	2	3	4	5	6	7	8	9	
	Number of Families								
1	3								3
2		1							1
3	5	5	3	3	1	1			18
4	1	10	15	15	4	4			49
5	2	7	17	19	10	—	3		58
6	2	5	14	22	10	7	2		62
7	2	1	15	11	13	8	—		50
8		5	2	4	2	5	1	1	20
9					1	1	1	1	4
10							1		1
11		1							1
Total	15	35	66	74	41	26	8	2	267

not engaged in private practice. This will explain to a certain extent the average small size of lodgings.

Another problem is that of overcrowding. On an average there is 1·16 room per one person; this figure is a demonstrative index of housing conditions of doctors. Under the circumstances, rooms destined for professional purposes are probably used as living quarters.

Amongst the numerous difficulties of a material kind, the problem of gainful occupation of women should be considered separately. Several of our informants stated that professional work of women comes into collision with her duties, as mother and educationist, that the work of the mother deprives the child

of the necessary care, and that in consequence it is much better, under the circumstances, to have no children at all. "Professional work of my wife is also an obstacle which cannot be overcome on account of the low level of my salary. The health of my wife, who is working very hard, leaves much to be desired. I can say without any exaggeration, that under the present conditions pregnancy and parturition would be a catastrophe for us." "Professional work of a woman interferes to a considerable extent with her duties as mother, and has as a result the limitation of family"—statement made by a medical woman having one child.

4. The second place on the list of causes of birth-control is taken by difficulties of proper education of children. It goes without saying that there is a close connection between this problem and the first cause, which has been already discussed. Moreover, the future of children, who though adequately prepared may at present easily fail and be defeated in their struggle for life, causes heavy anxiety. Arguments of this nature are often seen in the questionnaires. They are formulated more or less categorically.

Examples: "The necessity of having children has been recognized by both of us. At the moment we have three children, owing to difficult conditions (want of proper quarters, service, care, and education)." "We did not want to have more than two children, owing to difficult living conditions and the desire to give a good education to children which were already born." "The fear of difficulties which we would have in the education of a numerous progeny has decided us to limit the number of children." "The chief reasons for the limitation of family are difficult economic conditions existing at present and unfavourable horoscopes for the future position in life of our children." "Owing to the difficulties existing at present and to the lack of any prospects in the future, especially for Jews, I shall not have any more children. I fear that they would remain unprovided for"—the informant has three children, of whom two are twins.

Eugenic reasons are rare. In some of the questionnaires general remarks concerning this problem are seen. "Only persons physically and morally healthy should permit themselves to have children," or "the greatest plague of mankind is the bringing into the world of a generation of sick, and in consequence of persons unable to work." It is, however, difficult to judge to what extent these remarks apply to the case of the informant.

5. The third cause of birth-control is the dread of difficulties of pregnancy and labour for the wife whose health is not strong. This is expressed in different terms. Examples: "Contraceptives were used on the advice of the gynaecologists. We asked for an opinion, as my wife had a haemorrhage after the birth of the first child, and moreover was seriously ill not long ago." "Pregnancy is not indicated in my wife's case; she is suffering from a disease of the lungs." "After the birth of the first child my wife suffered from a heavy inflammation of the kidneys." "Pregnancy menacing with eclampsy, difficulties of parturition, the insecurities of tomorrow, these are the reasons for which we shall not have more than one child."

It should be emphasized that the above-named diseases can hardly be considered as indication for family limitation from the medical point of view. The remarks on the subject included in the questionnaires have often a general character: "difficulties of pregnancy"; "delicate health of the wife"; "my wife has tired herself out in raising the children we already have." Sometimes several causes are named at a time. Examples: "I don't want to have any more children on account of the delicate state of health of my wife, difficult economic conditions, difficulties of providing adequate education for a large number of children, especially as the children have at present no prospects for a satisfactory career. I shall not follow the example of my father, who had 17 children, of whom there remained three. This is a waste of forces of the wife, and it leads to unnecessary expense for doctors, midwives, diggers, priests, etc." The family has two children.

In some questionnaires it is clearly stated, and from others the impression is gained, that the dread of pain connected with pregnancy and labour is often expressed by the wife or her relatives. Examples: "The husband would like to have more children, the wife would not, she is fearing pain during parturition, as well as exhausting vomiting which made her first pregnancy so difficult." Different reasons are responsible for the fact that the wife is usually more in favour of family limitation than the husband. It may be clearly visualized from quite a number of replies. The feeling derives from the ill-health of the mother, as well as from anxieties and troubles connected with education of children, which still represent a heavy burden for the mother. Let us quote some examples:

"My wife was exhausted, and abortion was induced. She has

tired out herself with the care of the children during their infancy, and at present she cannot find a suitable nurse to whom she could entrust the child with full confidence. Pregnancies have always had a detrimental effect upon her health and have exhausted her."

6. Some of the replies cannot be included in any of the above-named groups. Those considered to be of interest are quoted below. Here we have, for instance, a family composed of a husband and wife, both members of the medical profession, and married eight years. They neither have any children nor want to have any. At the beginning this was for financial reasons, and then came other ones, which the informant describes as follows: "In addition my wife was opposed to it, saying that she did not feel able to carry out her duties as mother. I think she is suffering from a complex—her mother died very soon after her birth. There could be no question of constraint on my part, owing to my insufficient income. At present it seems to me, however, that at the bottom of all this there is a lack of courage and pride of motherhood." In another reply we read: "After the birth of the second boy many deaths took place in the family of my wife; this was followed by the passing away of one of our boys; my wife was so depressed that she did not want to have any more children. In her over-sensitiveness she considered that a new child would be an offence to the memory of our deceased boy."

Special attention should be called to cases of pronounced disinclination to have any children. The number of such cases for a small group somewhat exceeding two hundred families is not small. Examples: "We are in principle opposed to family life, and are very glad to have no children"—this couple have been married for thirty-one years. "My wife has no maternal feelings and no desire to have children." "In spite of rather satisfactory financial conditions we have no children; we have a pronounced disinclination to have them. Both of us come from numerous families (six and seven children) and had to suffer from many inconveniences connected with such a state of affairs. In consequence we decided to organize our life according to our own views" —both young, and married two years. "Children at a time when people, seeing the label 'Skoda,' don't realize that this is an announcement of the international factory of arms—children for cannons? No, gentlemen"—University professor married 20 years ago.

7. Methods used by doctors for the limitation of conception deserve serious consideration. Speaking generally, one would be inclined to think that the medical profession would use the up-to-date contraceptives. This is not, however, the case.

The first question which arises in this connection is, to what extent contraceptives are used. Out of the 253 questionnaires returned, in 64 (25·3 per cent.) we find an indication that no contraceptives are applied. This statement requires some explanation. First of all, in 11 of those cases these are marriages which have been contracted during the last five years—of which seven during the year immediately preceding the year of investigation. In regard to the above-named cases it is difficult to speak of limitation of conception, as on the one hand the majority of young couples desire to have at least one child, and on the other, in a quite normal course of marital life, conception sometimes does not take place for some years. The more so as some of the marriages in question have been concluded between people of older age groups, the wife being 30 and over. Moreover, in some of the questionnaires a remark could be found to the effect that the birth of the child was expected. The group contained also 13 cases of terminated marriages, so far as children were concerned, the wife being over 50 (the number of children in these families varied from one to six—deceased children included). In all these cases, if comparison is made between the date of marriage and the date of birth of all children, from the first to the last, it will seem improbable that such a small number of children per family is the result of a natural trend of affairs. One seems to be justified in assuming that the informants speak of the present, i.e. of the time when quite obviously there is no need for contraceptives, on account of the age of the wife. Probably there were also other reasons which accounted for the limitation of family. At all events the questionnaires provide no satisfactory explanation of the fact how in such a long course of marital life the families in question had two or three children only, without using any contraceptives.

In seven cases, while contraceptives were not used, abortion was made several times (up to eight abortions in one woman). Twelve questionnaires were describing childless marriages. Childlessness resulted in these instances from different diseases, chiefly the inflammation of the cervix of the uterus, or the uterus itself (sometimes following abortion). Repeated miscarriages were also enumerated.

In nine cases causes of physiological childlessness were indicated, such as atrophy of uterus, infantilismus-amenorrhoea, reflexio uteri in young age, urethritis of the husband, etc. The period of marital life lasted in all these cases for several years at least, and conception has not taken place.

In the remaining cases of the same group there were from one to three children (in one family even six). In one case the informant, a medical woman, reported that neither she nor her husband have used any contraceptives. The duration of their marriage indicated, however, that the number of children should exceed one. It is difficult to find any explanation of these cases.

In 189 questionnaires (74·7 per cent.) the use of contraceptives was indicated. The tabular statement below shows the data in detail:

		Per cent.
Condoms	112 cases	59·3
Coitus interruptus	80 „	42·3
Suppositories, tampons, douches (mostly vinegar or acetic acid), disinfectants of one sort or another	44 „	23·3
Pessaries	19 „	10·1

In drawing conclusions from the above table, it should be borne in mind that almost all informants used several contraceptives at a time (*coitus interruptus* and douches, suppositories and douches), or one independently of another (condoms and *coitus interruptus*). In some cases one method was applied, and then abandoned and another one tried, the one which seemed to give maximum of security, and diverged least from natural conditions.

The table clearly indicates that medical men use the same primitive contraceptives as the whole population. The percentage of persons using *coitus interruptus* for the prevention of conception is strikingly high, while the application of pessaries is rare. Of course, it should be remembered that *coitus interruptus* is always accessible, and does not require any preparations, which even in marital life are inconvenient. Probably the easiness of the method, and its similarity in the beginning to the natural act, makes the method so widespread, even amongst the medical profession.

The method of Knaus has few adherents. However, owing to some of its qualities, I shall dwell upon the point. The use of the method of Knaus, conjointly with other contraceptives, such as *coitus interruptus*, was indicated in 15 questionnaires. In these

questionnaires there is a wide variation in the definition of the length of the supposed "safe period": "Beginning with the twentieth day after menstruation." "Complete abstention during 5–6 days preceding menstruation, and during 4–5 days following menstruation, is an almost infallible procedure." "Without contraceptives during the last days preceding and following menstruation." "During the first year after marriage we had normal marital relations during the third week after menstruation. This measure proved to be successful during one year." "Sterile during the last 10 days preceding menstruation." "Normal marital relations during 7–10 days preceding menstruation." "The limits of the safe period are: 1–12 and 22–28 days following menstruation." So far as one can judge from these opinions, which contradict one another, the method cannot be considered as safe. Moreover, sterility in the successful cases may depend not on the method used but on other reasons. Thus one of the doctors writes: "It is difficult for me to say whether our infertility depends upon our habits in sexual life or on the fact that my wife suffers from growths of the uterus. The question could be solved if we could try normal marital relations immediately after menstruation. Unfortunately I cannot make the experiment owing to my financial situation. Although I have a post, my income is sufficient for a modest life only. We are three in family, and we cannot afford the education of the second child under present conditions."

To summarize: there is no contraceptive method which has no adherent in the medical profession. There is also no method which would be generally recognized. The long list of contraceptives in use indicates that in point of fact there is as yet no method which could be relied upon by individuals without failure. The question is discussed in some questionnaires. We can see from the opinions expressed that the use of contraceptives is unknown to many medical men. Examples: "My husband, although a doctor, owing to his prudery was not acquainted with the use of contraceptives, and did not want to ask for advice. Condoms had a detrimental effect upon his nerves. Contraceptives provided by the pharmacy failed. Two more children were born, i.e. we had four in all. We were both opposed to abortion on ethical grounds. Finally, we had to keep away one from the other, and had to go through many difficult moments."

Speaking of this general lack of information in regard to con-

traceptives in the medical profession, one of the doctors says: "It is to be desired that obligatory instruction in contraceptives should be introduced into the medical curriculum. The course of pharmacology should include a detailed description of contraceptives; the maternity clinics of universities should provide the students with practical information concerning all contraceptives of importance, and analyse the results obtained. It is to be regretted that gynaecologists, who have no qualm of conscience in inducing an abortion, and transgressing the existing laws, do not recommend any contraceptives to their patients. This state of affairs leads to unpleasant reflexions, and time is already ripe to consider the problem in full. A thorough discussion of the subject in the Press would have an influence on the situation. It should be possible to do away with hypocrisy in this field, and to stamp out the unlawful practice of some individuals, who by ill-fate are connected (by the exercise of the same profession) with those who hold strong the dignity of the medical world."

In general, the opinion prevails that the influence of contraceptives upon health, and especially upon the nervous system, is detrimental. Examples: "I consider *coitus interruptus* and *coitus reservatus* to be physiologically unsound and have a harmful effect on the female genital organs and the nervous system." "I am of the opinion that the avoidance of pregnancy is harmful; it should be admitted for a short period of time following parturition only, or in exceptional cases, on the doctor's advice." "The dread of conception has an unfavourable influence upon the health of the wife, especially on its mental side." "The constant dread of conception is a heavy psychological load imposed on both partners, and influences natural marital relations."

In a few questionnaires it is indicated that contraceptives do no harm. The following is a characteristic statement. The informant says that he uses *coitus reservatus* and adds: "the method is, of course, successful, and marital happiness is preserved."

It is difficult to compare the results obtained by different methods as almost all the informants use several methods, and often give no precise information as to which of these methods failed. In addition, some of the replies are not very clear, and one has to guess their meaning. In consequence, the figures indicated below must be used with caution:

In the 189 replies received the result was:

Positive in 98 cases: 51·9 per cent.
Fairly positive in 59 cases: 31·2 per cent.
Negative in 32 cases: 16·9 per cent.

The item "fairly positive" includes cases in which (*a*) the definition was used by the informant himself; (*b*) the informant stated on the one hand that contraceptive measures were successful, and on the other mentioned "conception," or indicated that abortion was induced. In point of fact, one could combine the fairly positive and negative results into one without making a serious mistake. Speaking generally, one could say on the basis of our questionnaires that contraceptives fail in about 50 per cent. of cases. Cases of pregnancy and abortion are reported in spite of the use of all contraceptives considered as reliable. Comparatively the best results are obtained with condoms. The method, however, in addition to its physiological and psychological drawbacks represents also a slight risk (rupture). Undesirable pregnancies are often encountered among persons protecting themselves with contraceptives, and a limited number of families only has never met with deception. In such a case, two courses are at hand: a child outside the programme, or an abortion.

8. The undesirable accidental pregnancy ends often in a normal birth of the child, as a certain number of families of physicians refute abortion on ethical grounds, sometimes for reasons of health. This number, however, is not very high—the majority decides for abortion. Out of the 255 questionnaires in which definite information on the subject were found, abortion was indicated in 214 (40 spontaneous and 174 induced) abortions. There was on an average 0·7 abortions per family, or, expressed in another way, 91 (35·7 per cent.) wives had abortions. If one excludes from the list marriages contracted a few years ago, as well as sterile marriages, in which conception could not take place for many reasons, it will become apparent that a very small number of families have avoided abortion.

The following figures show the number of abortions per family:

1 abortion was indicated by	46 families
2 abortions were indicated by	18 families
3 abortions were indicated by	16 families
4 abortions were indicated by	5 families
6 abortions were indicated by	2 families
7 abortions were indicated by	1 family
8 abortions were indicated by	1 family
Several abortions were indicated by	3 families

Abortions are induced for the same reasons for which contraceptives are used. Therapeutic abortions are rare, e.g. "three abortions were made on account of a prolonged disorder of the kidneys." In the majority of cases the decision is taken on account of financial considerations, anxieties connected with the education of children, discomfort resulting from pregnancy and parturition, exhaustion, and other physical troubles which cannot be always clearly defined.

The harm done by abortion is sometimes clearly indicated. A medical woman aged 43, widowed since three years, writes: "No contraceptives were used, for my husband was against it. There were eight abortions (during seven years of marriage) and I have still to suffer from the consequences of it (metritis). It is indispensable to use contraceptive measures providing full security, and to make an extensive propaganda for the use of same." "Nothing is so detrimental to the health of the woman as abortion, even if it is made by the best specialists, and according to the contemporary indications of science, for it always damages health." In a few questionnaires we find the remark that after abortion conception cannot take place, even if it is desired by both sides.

9. Fertility in families of physicians (the number of children per family) is low. There are on an average 1·74 births per family, and 1·54 children alive. Families having one child form 36·3 per cent.; two children, 29·6 per cent.; three children, 10·9 per cent.; over three children, 5·2 per cent. only. Childless marriages form 18·0 per cent.; this figure can be reduced to 10·5 per cent. if marriages contracted not less than five years ago are taken into consideration. Even if we admit that replies to the questionnaires were given as well by terminated as unterminated marriages, i.e. that some of the families may still have children, and will have them, the birth-rate of the medical profession should be considered as leading to the dying out of these families (see Table II).

Some years ago, studying the same problem in regard to the whole of our medical profession, I indicated that the average number of children per family was 1·45. It is of interest to note that since that time only insignificant changes have occurred in this figure. It must be, however, emphasized that the number of large families has considerably decreased.

A comparison made between medical families of Christian and Mosaic creeds shows that fecundity is lower in Jewish families. I

have already called attention to this fact in one of my earlier papers, and similar facts were described in other countries with regard to different liberal professions.

Speaking generally, the Jewish masses have a higher birth-rate than the corresponding classes in the Christian population; the Jewish intellectual class, however, is dying out more quickly than the Christian one. In our investigation we have 7·1 per cent. of

TABLE II

FERTILITY IN FAMILIES OF PHYSICIANS

	Christians	Jews	Total
Total number of births	359	109	468
Number of births per family ..	1·83	1·51	1·74
Number of childless families ..	40	7	47
Number of families with 1 birth ..	48	31	79
Number of families with 2 births ..	59	25	84
Number of families with 3 births ..	24	8	32
Number of families with 4 births ..	15	1	16
Number of families with 5 births ..	3	—	3
Number of families with 7 births ..	1	—	1
Number of families with 9 births ..	1	—	1
Number of children alive	314	99	413
Number of children alive per family	1·60	1·37	1·54
Number of childless marriages ..	41	10	51
Number of families with 1 child ..	60	31	91
Number of families with 2 children..	57	25	82
Number of families with 3 children..	24	6	30
Number of families with 4 children..	7	—	7
Number of families with 5 children..	3	—	3
Number of families with 6 children..	3	—	3
Number of families with 7 children..	1	—	1

families with over three children, all these are Christian families. There is no single Jewish family in which the number of children exceeds three. It must be emphasized, however, that we have to deal with small figures, and this is especially true for the Jewish group. Consequently the difference may be accidental. At all events, the difference was described by many authors, and therefore deserves consideration.

For the purpose of studying the influence of the work of the mother on the size of the family, we have divided the families of our informants into two groups: families where the wife is gainfully employed, and families where the wife exercises no profes-

sion. The first group was composed of 64 families, the second of 20. The number of children per family was 1·03 and 1·7 respectively. In view of the growing number of women employed in gainful occupation (the intellectual class), the matter requires serious consideration.*

10. The mortality of children in families of physicians is very low. Out of 468 children named in the questionnaires, 55 died at different ages (infants, children, and juveniles). The infant mortality-rate is really low: it amounts to 4·1 per cent.

It is also of interest to compare the number of births and the duration of marriage in the above-named group:

Duration of Marriage	Total Births	Total Deaths
Under 3 years	243 (51·9 per cent.)	33 (13·6 per cent.)
Under 5 years	85 (18·1 per cent.)	8 (9·4 per cent.)
Under 10 years	101 (21·6 per cent.)	9 (8·9 per cent.)
Over 10 years	39 (8·3 per cent.)	5 (12·9 per cent.)

As one could expect, over 50 per cent. of children were born during the first three years of marriage. The majority of families during the early years of marital life desire to have at least one child, although the investigation includes among the informants one family which voluntarily postponed the birth of the first child until the tenth year of marriage, and the birth of the second until the fifteenth year.

11. Finally, we come to the last question, the fertility of parents in the families of our informants. Here are the figures. In the preceding generation the number of children per family was remarkably higher, 5·7. In comparison with this the present rate, 1·54, is striking. Moreover, it should be borne in mind that in both generations we had the same social class—the medical profession (including wives) mostly derives from the bourgeois class. Workmen and peasant families are hardly seen. Of course, there are some drawbacks in this comparison. First of all, quite a number of families of our informants are not completed marriages, and the

* The Fertility-rates in families of physicians according to the age of wives and to the duration of married life have been shown in the previous article (*Population*, No. 3, Table I, p. 28, and Table IV, p. 33).

number of children may increase; then childless marriages which in a limited number were also encountered in the preceding generation are included in our questionnaires. Then our informants chiefly belong to large families, as children of large families have more chance to survive. It is rather difficult to eliminate the

TABLE III

FERTILITY IN THE PRECEDING GENERATION (IN THE FAMILIES OF OUR INFORMANTS)

Number of Families of the Preceding Generation having—	Parents of the Husband	Parents of the Wife	Number of Children
1 child	7	7	14
2 children	19	19	76
3 children	37	51	264
4 children	25	39	256
5 children	41	35	380
6 children	42	38	480
7 children	32	19	357
8 children	19	19	304
9 children	12	16	252
10 children	11	8	190
11 children	4	5	99
12 children	5	2	84
13 children	5	2	91
14 children	2	2	56
15 children	2	—	30
16 children	2	—	32
17 children	1	1	34
18 children	—	1	18
	Total		3,017
Total number of children in the preceding generation	1,583 (based on 266) replies	1,434 (based on 264) replies	
Arithmetic mean per family	5·9	5·4	5·7
Harmonic mean per family	4·35	4·06	4·20

first mistake and the second one. The third mistake, i.e. the difference arising from the higher number of children in fertile marriages at present and a generation ago, can be eliminated by the calculation of harmonic mean.

The harmonic mean for the preceding generation is about 4·20; this is still a very high figure in comparison with the data for the present generation. In addition, it should be remembered

that the number of children in the preceding generation was probably much higher than is indicated in the questionnaires. Brothers and sisters who died early were probably forgotten, and not included in the list.

Having enumerated all these reservations, we must arrive at the conclusion that at present the families of physicians have much fewer children than their parents had, and that in point of fact the present birth-rate is so low that it is difficult to speak of fertility. The trend of the curve indicates rather the danger of dying out.

Limitation in the General Population

12. Simultaneously with the questionnaires on the number of children in their own families there was sent to physicians a special questionnaire of a descriptive character, the purpose of which was to collect and to summarize their views and observations gained in the practice of their profession. The questionnaire was composed as follows:

"The Polish Institute for the Scientific Investigation of Population Problems is making a survey of fertility in Poland, giving special attention to the decrease in the birth-rate. In addition to other sources of information, the Institute would like very much to profit from the valuable experience of those who in their professional career have often to deal with the problem. There is no doubt that you, Gentlemen, as medical practitioners, have the privilege to gain by experience a thorough knowledge of the situation. Consequently the Institute would greatly appreciate any communication from you on the subject. The information obtained will be considered as strictly confidential. The name of the informant will be quoted only, if such a wish shall be expressed in the questionnaire. Replies can also be returned without signature. No obligatory form of reply is being established—the Institute requests, however, that the following points should be taken into consideration:

I. General characteristics of the field of observation.

Village or town? Large or small town? Composition of the population: middle classes, intellectual workers, workpeople, peasants? Cultural level, religion, nationality of the said population.

II. The attitude of the population, especially of women, to the problem of progeniture.

Are children desired—if so, how many? Several, two, one, or is the tendency to have no children at all? State reasons for such an attitude: economic conditions, housing conditions, the desire of parents to secure for themselves and for a few children better living conditions? Professional work of women? Ill health? Dread of pregnancy and labour? Other reasons?

Doctors who have practised for a longer period in the same locality are requested to state whether the given community has changed its view on the problem in comparison with the pre-war period.

III. Are contraceptives used, and if so, of what kind?

Medical men working among the small income population are requested to dwell on this point, especially if they practice in country districts. Attention should be given not only to contemporary contraceptives but also to all kinds of home means to prevent conception, effective or considered to be effective, by the population.

IV. Is abortion practised—if so, in what form?

V. Other factors which have an influence on the increase or the decrease of the number of children.

Early or late marriages, childlessness resulting from the physiological status, alcoholism, disease (especially venereal diseases), and the like. Figures which could be provided, on the basis of private practice of the informant, will be appreciated."

One hundred and forty questionnaires were returned. In some instances the replies had the form of articles, in the majority of cases, however, these were strict answers to the questions enumerated in the questionnaire.

Replies were chiefly received from elder physicians with long years of practice. Some of the informants had lived in the same place for decades. It goes without saying that this fact has considerably increased the value of their statements. It appears that some of the informants had been interested in the problem for many years, were keeping notes and records, and had quite definite views on the matter. Much valuable information was

given by gynaecologists, who have most to say, as well as by district medical health officers, hospital physicians, doctors working in health insurance in responsible positions. Some replies were based on large numbers.

The conclusions are of a rather general nature, and differences of opinion were encountered among informants dwelling in the same locality. This results from the fact that the subject was considered from different angles and points of view. Some of the informants consider the situation from the sentimental viewpoint, others speak of actual conditions, or discuss some striking facts. In general, however, the divergence of opinion is not large, and there is much similarity in many points. Let us consider them all:

Replies were received from all parts of the country. They show the situation in urban and rural districts, although there is some difficulty in a strict division of these replies, as many medical men, especially gynaecologists residing in towns, have quite a number of patients from the country. Also, it is hardly possible to show the difference by religion or nationality, with the exception of the broad division into Christians and Jews

13. The attitude of the population towards the question of fertility is, of course, the most important one. Out of the 140 replies received, in 10 only we find a definite statement to the effect that no tendency towards birth-control is seen among the rural population or inhabitants of small towns. However, in the same questionnaires mention is made of abortion, and in other replies from the same area mention is made of the decrease in the birth-rate. Anyhow, the 10 replies in question were received from the western part of the country, from the provinces of Poznan and Pomerania, where "on account of the deep religious feeling and the influence of priests on the population there is no tendency towards family limitation."

Outside of this, in the western as well as in the eastern parts of the country, amongst the Christian and the Jewish population, a definite tendency for family limitation is clearly indicated, and this tendency is spreading gradually to the lowest classes of the population; this is the most characteristic feature of the situation at present. It is difficult, of course, to form any opinion as to the comparative intensity of the movement in different parts of Poland; one has the impression, however, that the problem is very acute among the Ruthenian population.

It goes without saying that all over the country fertility reaches the lowest point in the well-off and intellectual classes. In these classes we meet with the delay of the birth of the first child, with the "one-child system"; we see also childless marriages (at least during a period of years), and in exceptional cases a definite dislike to have children at all.

"A definite dislike to have children is chiefly encountered among State and private employees; of course, this is not the rule, but a fact which occurs very frequently." "I must say that in the proletariat the first, second, and even third pregnancy is viewed much more calmly than in the intellectual class. Only in the case of numerous pregnancies the proletarian mother gets into despair, especially if she must gain the living for the whole family, as it is often the case at present during the difficult times of financial crisis and unemployment."

Birth-control in the well-to-do classes is not a new thing; in the lower classes it has lately come into existence, and spreads at present like an epidemic. One of the doctors says: "The exceptional dread of pregnancy is manifest at present, and that not only in prosperous classes. One could say that there is an inversion between family limitation and the financial situation and consciousness of the population. The prosperous, cultural, and informed population has the lowest birth-rate. In the small bourgeoisie and the better-paid working class the third or the fourth pregnancy is considered a calamity. Peasant families and inhabitants of small towns also dislike and dread large families; however, they will sooner accept four to five children than the upper classes, and only a larger number of children is considered as the 'punishment of God.' It is of common occurrence at present that the peasant woman would like to have no more than two children. She visits the doctors and asks for 'drops which would prevent pregnancy,' or for 'such a treatment that she will never have children any more.' "

Examples: "During the last years of economic crisis, reduction of the number of employees, and poor wages, we see a radical change in the attitude of married women. Young couples take care to avoid pregnancy. On the average, a couple would like to have no more than two children. The decision with regard to family limitation is chiefly taken on account of financial conditions, difficulties in the provision of proper education to children, uncertain prospects for the future, and the feeling that there is

already an overproduction of the population." "The attitude of the population towards family limitation has remarkably changed after the War. This is the result of poverty, and to a certain extent the example given by the intellectual classes, as well as the easiness of abortion (young physicians, midwives)." "In towns and in country places there is a definite tendency to maintain the 'two-children system.' I have never heard anyone express the wish to have many children. On the contrary, children are undesirable. This point of view prevails at present, while in the pre-War time the opposite tendency existed."

The proletariat in towns and the lowest classes of the agricultural population are the only members of the community who do not dread numerous children. The influence of unemployment on the size of the family is also often discussed in the questionnaires. Examples: "Among the poor and uneducated, especially among the unemployed, the sexual desire is not restricted by any considerations. In consequence, the birth-rate in this social class is very high. As a characteristic fact the large increase in the number of illegitimate children can be quoted." "The increase of the birth-rate is clearly seen during the last two years, conjointly with the increase of unemployment. Unemployment influences the birth-rate; the unemployed man has usually more frequent intercourse with his wife than the man who has his work to do."

The above-named groups of the population have a philosophical attitude of their own with regard to the population problem. One of the doctors reports that when he called the attention of an agricultural worker to this question, who occupied with his family, composed of nine persons, a small room, the man replied: "one has little to eat, little to drink, little to put on himself, should he deny himself even that?" Another one remarked that there is no help for this. Adjusting their lives to these principles, the "lumpenproletariat" in towns, and the poor agricultural worker in the rural areas, have very large families. The poor Polish peasant says, "the one who was created by God will not perish from hunger"; and the poor Jew adds, "God has given children, he will also provide for the children," or again, "it was sufficient for such a large number, there will be enough for one more."

The attitude of the man (husband) to a large family, and to the wife as mother, is characteristic. In the well-off and intellectual classes the desire to have children is more intense among the men than the women. Men try to avoid conception chiefly on

account of the ill health of the wife, or the uncertain prospects in the future for the next generation. "Generally speaking, men would rather like to have children, even more than one child. Women, especially those belonging to intellectual classes, would like to have one child."

The situation is different in the masses, where as a rule the number of children is higher. We rarely see here any desire to have children on the part of the man, if the wife is opposed to this. On the contrary, men often express their dissatisfaction with regard to the increase of the family, and the incapacity of the woman to prevent an undesirable conception. "On account of very hard living conditions, peasant women want to have no more than one to two children. The third is already undesirable, not to speak of the fourth. I know cases of peasant women fainting from despair when it was ascertained that they were pregnant. "My man will kill me, said one of them."

"Hold a consultation with yourself." This is the advice given by the husband and the future father. The lower the class, the harder is the indifference of the man; he wants to have some satisfaction, its consequences, such as the possibilities of pregnancy, the increase of a large family, are of little concern to him, and have no influence on his behaviour. It is of interest to note that the women are of the opinion that this is quite a normal state of affairs, and consider that this problem must be solved by the woman herself—"there is no reason to talk it over with the man; he has to look after his own affairs."

A hard life is not ennobling to the sentiments, and even the danger of death is not dreaded. "If a cow is ill, the peasant goes at once to the pharmacy, for if the cow dies, nobody will give him another one. In the case of the illness of the wife this is quite different; first of all she may recover, and it is a pity to spend money on the doctor, and if she dies, there is always a prospect of a new marriage, and a new dowry (cows and horses)." "It must be said that even in the more prosperous peasant families the husband gives little attention to the education of children, or to his pregnant wife; the whole burden of the bringing into being, and the care for the children, is carried through by the wife."

Although there is much similarity in the causes of family limitation in different classes of the population, there are also some divergencies. Among the better-off people the chief reasons are: desire to maintain the standard of life, modest salaries, uncer-

tainty of present conditions, dread of troubles connected with the education of children, concern for the proper education of children, and solicitude for their future, anxieties connected with pregnancy, ill-health of the mother, unsatisfactory relations between the husband and the wife. Among the poorer, family limitation has as the only reason financial difficulties, often indigence, lack of means to provide nourishment for children who already exist. In some instances the undesirability of the division of the farm amongst many children, unsatisfactory housing conditions, or professional work of the mother (in industrial enterprises) are indicated, as well as dread of pregnancy at an elder age, when the children are already grown up, and a new pregnancy is considered as a shame.

Naturally the division into such two groups is an artificial one. There is not much difference between the concern for the proper education of children in the upper classes and poverty which is increased by the birth of each additional child in the lower ones. These are degrees, different aspects of the same problem. Both groups prefer to have few children, or no children at all, for life is easier and more comfortable without them.

Financial difficulties, however, are not always the decisive factor. One advanced medical woman, fully realizing the importance of the economic side of the problem, says: "Before the War I have worked among the industrial population in Lodz. There was no unemployment at the time, but poverty was there. During the lock-out of 1907 some of the families were driven to complete misery, and even then there was no sign of such an almost general panic dread of pregnancy as at present."

Some of the informants call attention to the change in the psychological reaction of the population to large families. "The general attitude of the population towards the problem is decisive here, and not financial considerations, which actually have improved in our locality since the War, although there is now also some unemployment."

The most drastic feature of the situation is that families having a large number of children are treated with compassion, especially in the well-off classes. Who knows, perhaps, this attitude is the most important feature in the problem of family limitation. The weakening of family ties influences the situation, as well as the fact that in the lower classes the child is no more a financial asset. The rôle of religion as a curb against the limitation of conception

has diminished to a considerable extent. A large majority of our informants is of the opinion that in this respect a radical change has occurred in the mentality of farmers, and is steadily gaining ground. "In the believing Jewish masses religion has a more marked influence upon the attitude towards birth-control than among the believing peasants."

A similar remark is found in many replies. However, even chaste couples united by religious marriage, and "conscious of their sins," as one of the doctors says, limit the number of their children, not to speak of free thinkers from among the young Jewish generation, who have no more than one to two children.

It is difficult to establish when this movement towards family limitation has begun, although often this is being connected with the Great War and its aftermath. On the basis of the questionnaires it is difficult to say whether the World War, as it is generally assumed, has played the rôle of the stimulus in a movement which has already existed. At all events, the effect of the War on family limitation in the lower classes of the population is undoubted. The War, however, was not the only stimulus; according to the statement of quite a number of our informants the movement has considerably increased in intensity during the last few years.

Examples: "Since two years, in all classes of the population, the disinclination to pregnancy has remarkably increased. The crisis is responsible for this phenomenon. Speaking generally, women want to have one child, and this usually after they are 30 years old. They don't wish to accept such a responsibility at a lower age." "During the last four years the tendency to avoid pregnancy is constantly growing. This can be also seen to a certain extent among the peasant population." "The number of induced abortions which have been made during the last two years is simply frightful." "The decrease in the number of births during the last few years is alarming." It is difficult to judge whether these remarks are a proper explanation of the existing situation, or the opinion of our informants has been based on an *a priori* conception that there must be a relation between the birth-rate and the crisis. At any rate, there is no doubt that the movement has increased in intensity during the last years.

14. From all that has been already said, it is clear that contraceptives are used in all strata of the community. The well-to-do

classes use methods which are more or less based on the indications of contemporary medical science, as well as those which are the most simple, and which are used by the doctors themselves. These are in the probable order of importance: (*a*) *coitus interruptus* (not recommended, but very widely used); (*b*) condoms; (*c*) douches with disinfectants; (*d*) different globuli vaginales; (*e*) tampons, pessaries, occlusives.

Descending the social scale we see the use of more primitive and less satisfactory methods. The well-off tradesmen and qualified workmen, the better-off population in towns are informed as to the proper contraceptives and the use of them. They can also meet the necessary expenses and have technical possibilities of applying them—a question of elbow-room. The broad mass of the population can only choose between abstinence, the practice of which is a barren affair, or *coitus interruptus*. This method is more and more frequently used. It represents the only method common to all classes of the population, including the medical profession.

In addition to these methods, the broad masses of country women use different methods, which are sometimes like tales taken out of the world of phantasy. Of mechanical methods which are more or less satisfactory, the country dwellers and workpeople in towns, especially in small towns, know little, or cannot have them on account of the price (condoms), or the lack of information how to use them or where to get them. Moreover, in small settlements people are somewhat ashamed of going to the pharmacy to buy contraceptives, as everybody is personally known at the pharmacy; finally, the environment is unsuitable (one room).

Out of the methods widely used by the masses the following should be named. First of all, in addition to *coitus interruptus*, prolonged suckling of infants and children, up to two, or sometimes three or even more years. In many places the opinion prevails that conception can take place only at definite dates between menstruation. There is, however, no uniformity in the definition of these dates; they vary from one place to another. The belief also exists that conception cannot take place if immediately after intercourse the woman urinates, and in this way the semen is washed out; or if the woman controls her orgasms *sub coitu*. It is said that this often leads to martyrdom of the women who are trying it.

The "well-informed" consider that curvature of uterus makes

conception impossible. In consequence, some of the patients suffering from this disease refuse any treatment, or even ask the doctor to make an artificial curvature of the uterus. As *curiosum* one could add that *situs inversus* during the *coitus* is considered as a means of avoiding conception.

A large field of misuse originates from the belief of the peasant population that different drugs taken before intercourse can prevent conception. In some districts women wear amulets to avert the ill, quacks protect them by their charms, and villages are visited by charlatans, who sell drugs against pregnancy, at expensive prices. It is of more and more frequent occurrence that country women visit pharmacies and midwives "to get pills," or ask the medical practitioners to "sew up" the uterus in such a way that no conception could take place. . . . "Unintelligent but conscientious midwives are already providing country women with buttons," without explaining that they should be taken out and cleaned. Sometimes the women in order not to spend too much money on the midwife, wear the buttons for such a long time that they begin to suffer from hæmorrhages or ulcerations. They are quite astonished to find still in the contraceptive which was introduced many months, or years, before.

15. In order to have as small families as possible the population is not only using contraceptives but abortion as well. Moreover, it begins not with contraceptives but with abortion, which is of almost as frequent occurrence as normal delivery. This is met with in all classes of society. In the poorer and uninformed parts of the population, abortion is more frequent than the use of the primitive contraceptives which are accessible to them. However, the same should be said of the better-off classes, which in addition to the use of contraceptives also practice abortion on a large scale.

It follows from the questionnaires that in the intellectual class the number of families in which during the whole of their marital life no abortion has taken place is very low. In many replies it is stated that the number of abortions increases at an alarming rate, and abortions are of common occurrence in all classes of the population. In addition, from the majority of replies received, one gets the idea that the tempo of the movement is increasing, not from year to year but from month to month, and that those who perform the operation, and those who undergo it, get more

and more familiar with it. Public opinion seems to give its consent by silence.

Examples: "I noticed that the patients during examination speak of abortion as of a very common thing, and when they are asked if these were induced abortions they reply without any hesitation, 'yes,' even in the presence of other patients or the midwife. According to my observations, abortion has at present a character of an epidemic—I may even say that it has become fashionable." "Abortions, or at least attempts to do so, are generally accepted, and are already becoming a tradition. People speak of this procedure as of a very common matter. The practice of abortion is spreading into rural districts, and is made not only in 'cases of distress,' but in regular marital life."

In many questionnaires figures are given regarding the frequency of abortion. Thus a medical practitioner residing in a small town writes that up to the year 1930, in the two hospitals located in the town, there were made annually about 100 curettages, both on account of abortion or puerperal fever following abortion. This figure increased to 215 in 1931 and to 190 in 1932. Another doctor residing in a town of 45,000 inhabitants indicates that during the last two years he has treated over 600 cases of abortion, of which three resulted in death. "The attitude of the population to the problem of progeniture is deteriorating from year to year. So far as one can judge from the number of cases applying for treatment on account of 'hæmorrhages,' which during the examination of the patient prove to be abortions, about 50 per cent. of conceptions end in this way." "In treating my patients I always ask them if they had abortions, and in at least 30 per cent. of married women I get a positive answer." "Daily three to four women come to ask for abortion." "During the last year the number of abortions in the insured urban population was almost equal to that of deliveries. Cases are cited of women having three abortions during one year."

The figures and examples quoted above speak for themselves. There can be no doubt that abortion is a social plague. The facts communicated by some of the medical practitioners in regard to the number of abortions per one woman are striking. Several abortions are not rare, and some of the figures quoted are fantastic. Thus one of the medical practitioners states that a midwife, who came for treatment, had already had 34(!) abortions; another doctor indicates that he had under observation a patient

who had seven children, and had 35 abortions. He concludes: "I ended this game by extracting the uterus, on account of tumours dangerous to the health of the patient. Her sister had five children and had 17 abortions."

The increase in the number of abortions results, as is indicated by almost all of our informants, from the same twist of various conditions which were enumerated when the tendencies governing family limitation were discussed. Further, abortions are fostered, not merely to a small extent by the broad publicity and easiness of the procedure, by the profit they give to those who are making the operation, as well as by the corresponding trend of public opinion. Among the workpeople the increase of abortions is to a certain extent connected with their employment abroad in France, Germany, and the United States. "Coming home," says one of the medical practitioners, "workpeople bring with them not only information on the subject but sometimes special instruments for the making of abortions."

In a large majority of cases women try to induce abortion themselves. This is also true for the well-to-do people. Usually the women act in accordance with the advice of their experienced friends. Among the means recommended, the following should be named: injections, hot bath for the feet, bath with the addition of mustard, quinine in large doses, cumenol, spurge, Carlsbad salt, cassia (senna), aloes, castor-oil. Country women use june-berries, Sabina fruits, fruits of the "black rose," or they drink powder, saffran with whisky, and take all kinds of remedies. In one place near the Forest of Białowieza, women introduce into the vagina the manure of horses and pigs, which it is believed acts as a strong spermaticide.

If all this fails, as it does as a rule, more hazardous intervention is tried in the hope of producing the expected results. In the popular classes the woman then tries all available mechanical means to produce haemorrhage and contractions of the uterus. Then begins the long martyrdom of the poor mother. Pregnant women undertake physical work far beyond their forces, such as, e.g., carrying heavy loads, prolonged laundering, falling from the stairs, jumping over ditches, jumping from haycocks during several consecutive days, etc. The list includes also operations on the uterus, such as knocking the belly, massages, cheroplastic, putting on the belly of a large pot which has to act as a cupping-glass, irritation of the cervix of the uterus.

From time to time quite unbelievable methods are practised. We quote them according to a statement of an advanced specialist in Warsaw: "I had to deal with cases of barbaric beating of the wife by the husband (with her consent), or of an intentional falling down the stairs, or from the tram-car, in order to induce abortion."

When all these very risky methods have been tried in vain, the next procedure consists in the introduction of an instrument into the uterus. This is made either by the woman herself, by a quack, an *ad hoc* specialist, chiefly a suspected individual, or a midwife, if the pregnant woman has sufficient means to pay for her aid. Women know how to introduce into the cervix of the uterus awls, spindles, hair-pins, nails, pencils, catheters, twigs of willow, laminaria, or they inject iodine and "soap water." Progress in the information on the subject and an improvement of technique is clearly noticeable. "Abortion is not seldom carried out by country women themselves, one helping the other. One can find among them 'experienced ones' who introduce iodine into the vagina, and are even able to handle a catheter. If this procedure does not lead to a complete abortion, the beginning is, however, made and then nobody will refuse to help. Very often all that is expected from an attempt to induce abortion is to make it irrevocable. Women having several children are ready to sell the last cow or pig if at this price they can prevent the birth of one more child. No risk and no danger can stop them. It seems that the prospect of the increase of the family is more dreaded than death itself." "I would rather die than have any more children." "Jewish women of average intelligence use all sorts of contraceptives and induce abortion; peasant women for the most part disable one another, and then, dreadfully bleeding, they are brought to the hospital," says one of the doctors.

As in all other cases, when on the one hand we have a violent desire to achieve a thing, and on the other ignorance prevails, sufficient ground is provided for the development of a cruel exploitation. Villages are visited by quacks who are selling drugs against all diseases, pregnancy included. "An effective dose (for the seller) costs 40 zloty, i.e. £1 10s." The following facts were quoted by a doctor inhabiting one of the Central Provinces: "In small towns one can find 'knowing women' specializing in abortion. These are chiefly fortune-tellers who are wandering from one village to another, and collect information concerning young

pregnant women as well as married women who would like to interrupt pregnancy. Telling fortunes, they try to get out of the woman her secret, in order to propose help. Often the fortune-teller has no idea how to proceed to abortion; they apply different herbs, charms, without any results, of course. In this way they wheedle from naïve women money, and when pregnancy, in spite of all remedies, has run its natural course for six or seven months, the deceived woman comes to the medical practitioners with a complaint against the 'knowing woman' who had already extorted for her machinations from 70 to 100 zloty." Cases of refined abuse feeding on ignorance and misfortune are also cited. "We have here one man who helps the pregnant women for a low price of 10 to 15 zloty, under the condition that the patient has sexual intercourse with him. This is urged under the pretext that this will make the operation more successful."

It is said by our informants that the above-named "knowing women" have a definite influence on the birth-rate of the peasant population. They enjoy a great popularity, and they are not frightened away from their doings by the victims they have on their conscience.

The well-off women apply for help to midwives who are known to have an "easy hand." Midwives usually pierce through the chorion with different instruments, plug with tampons until the necessary effect is obtained, inject different solutions, finally some of them make curettings. In one of the questionnaires the example is given of a midwife who has introduced sublimate into the uterus. Abortion and severe poisoning resulted from it.

The number of midwives inducing abortions is increasing, and it is of interest to note that even in fatal cases the name of the delinquent is very seldom named to the authorities. Midwives hold the position of benefactors among their clientele and their friends, and all women, even those who have suffered a great deal, when appearing before the Court as witnesses stand by the midwife, and refuse to render evidence even against notorious criminals. Such an attitude is very frequently seen in towns, and spreads also into country districts.

16. The rich and well-informed women are treated by medical practitioners. The number of doctors making abortion is increasing, and the price of the operation is going down. The demand is being met here also. There is not much difference in regard to the

cost of the operation made by the medical practitioner and the midwife. It is only known that midwives are more readily accessible than the doctors. In four questionnaires the remuneration for abortion is indicated.

The first of them states that the midwife gets 10–20 zl. and the doctor 50 zl.
The second of them states that the midwife gets 40 zl. and the doctor 100 zl.
The third of them states that the midwife gets 30 zl. and the doctor 50–100 zl. for a curetting.
The fourth of them states that the midwife gets 10 zl. for an ordinary procedure and 15–20 zl. for a curetting.
In no case the sum exceeds 100 zlotys. (chiefly small towns and country districts).

Many questionnaires contain complaints against midwives. Masses of the population make little use of the help of midwives in normal cases of pregnancy and delivery; consequently, for a large number of midwives abortion represents the most important, if not the only, source of income. The remark was made in several questionnaires that midwives, having no means for existence, are induced to make artificial abortions, which represents a risky but profitable employment. One of the doctors adds "that sometimes midwives are making abortion for a ridiculous price." Midwives are gradually improving their technique, and are more and more daring, although often they act with more audacity than knowledge, and do much harm to the patient. Prosecution of criminal midwives is difficult, and the penalties imposed are not frightening. Moreover, the prosecutions are rare.

Now and then the doctor and midwife conclude a business agreement; the enterprise is well managed; it employs the so-called "drivers." "This name is given to persons who collect in villages women looking for help, and bring them to the specialists in the town (midwives, medical practitioners)." "Propaganda for abortion is conducted on a large scale by midwives, who are surrounded by helpers, lying in wait around railway stations, hospitals, clinics of the Health Insurance, and the like. In this way and by publicity in newspapers the patients are collected. If the clientele is too small, they act through the allied medical practitioners, who take part in this wretched procedure without basing their conclusion on medical indications."

Finally, abortions are made *larga manu* by medical practitioners. The majority of our informants disapprove the participation of

medical men in these affairs, many of them speak of the facts with indignation. Some of the informants are of the opinion that medical practitioners making abortions are exceptions. It seems however, that this is not the case. Information provided by the questionnaires indicates that, speaking generally, many doctors make abortions themselves; others take a more or less active part in the procedure. The following examples are illuminating: "Difficult living conditions, general destitution, the change in public opinion, the increase of indifference towards religion, the desire to gain, have all largely contributed to the increase of the number of abortions. This dreadful procedure is made in the first instance by midwives and quacks, and also, *horribile dictu et auditu*, by a still increasing number of medical men." "Unfortunately, among medical men we meet to-day individuals who make abortions for a low price."

On account of the decrease of the medical practice, some of the doctors make their living chiefly out of abortions. This takes place also in small towns, and the price for the operation is steadily going down. "During the last years the number of induced abortions has increased. The decrease in price makes the procedure accessible. For the convenience of patients and personal safety of the operators, the work is usually divided: the midwife makes the beginning, her associate, the doctor, conducts the procedure to an end, more or less successfully." "Abortions, by the popular method of curetting, are made by doctors in towns in large numbers. It seems that remuneration for this type of operation forms the greatest part of income of many physicians. The reasons for abortions are indifferent, in 99 per cent. the desire of the patient to do so is sufficient. Moreover, the diagnosis of tuberculosis provides a wide field for interpretation." "The number of abortions has never been so large. I am firmly convinced that many young doctors are working in gynaecological departments of hospitals for several months in order to gain the necessary technique for the proper making of curettings. I know doctors who derive 95 per cent. of their large income from this illegal procedure."

There are some other examples quoted by our informants which show that some medical men have acquired fortunes in this way. I shall not cite the cases for various reasons. There is no doubt, however, that doctors play an important part in the development of the movement of family limitation, and that for

many of them, who should best be termed "abortologists," the remuneration for abortions represents a large part of the income. It should be added that although there is no doubt that the above-named facts and opinions reflect the actual state of affairs, there are other reasons beside the financial ones which are responsible for the attitude of physicians. These are reasons of sentimental and social character, which lead even decided opponents to a compromise. The note of a hard necessity is felt in many replies. It should be also emphasized that in many cases doctors must of necessity take an active part in abortions. Even if the increasing number of induced abortions made for the reason of health is set aside, the doctors must frequently complete the operation which was commenced by someone else in dreadful conditions. It happens that a doctor who has refused to make an abortion, after a few days is called to do his duty by the same patient, already "operated" on by someone else. Much harm is done to pregnant women in such a way; infection, the piercing through the uterus, poisoning with sublimate, burnings, are diagnosed. "Women entrust their lives to midwives, or other specialists, and the medical men must afterwards repair all that has been done by the making of a curetting." This is the *leitmotif* of all replies; in a detailed investigation of the problem, all the above-named aspects must be considered.

17. Remarks regarding mortality following abortion are found in many questionnaires. There is no uniformity of opinion in regard to this matter. Some of the informants, who probably form the majority, hold the opinion that abortion is always a dangerous procedure, and quote a number of accidents, which are specially numerous, in cases of intervention made by the midwife; others, on the contrary, say that a well-made abortion is not dangerous. Finally, an opinion prevails that abortion represents a smaller risk to the woman than normal delivery in rural conditions. "Fatality-rate in abortions made by physicians is exceedingly low; it is much less than that following parturition in unsuitable conditions, which are so often met with in country places." The informant bases his opinion on ten years of practice. "Many midwives are well trained now, and make use of aseptics." Consequently, "deaths from abortions are very rare."

18. Information regarding other factors influencing the trend of fertility is scanty. Physiological sterility is rare. Moreover, in

concrete cases it is often difficult to say whether we have to deal with the above-named aspect of the problem or sterility as the consequence of diseased conditions. In the opinion of some medical men physiological childlessness (*infantilismus, pseudo-hermaphroditismus*) is more frequently seen in Jewish than in Christian women, and results from frequent marriages of near relatives. In general, physiological sterility is rare, and usually is a source of great distress for both the husband and the wife. Speaking of that, one of the doctors said: "Only childless families are keen to have children."

A much more important factor in family limitation is sterility as the consequence of a disease, chiefly of gonorrhoea. Gonnorrhoea in the man has a direct, or indirect, influence on conception, in the last case by way of infection and inflammation of the female genital organs. However, venereal diseases seem not to be very widely spread, and their influence upon the decrease of the number of births is limited. The movement for family limitation, with its arsenal of contraceptives, is of importance; the first place, however, in the prevention of birth is taken by abortion. Often after several abortions the woman remains childless, in spite of the desire to have a child at a later date.

Alcoholism is in general on the decrease owing to economic conditions, and even in the indigent classes of the community, where it still is a problem, it has no influence upon the birth-rate. On the contrary, it rather fosters fertility, diminishing the power of self-control and the feeling of responsibility. "It is possible to see the influence of alcoholism on the progeniture, but I have never seen its influence upon the number of children. Alcoholic families have often more children than the average families." "Alcoholic parents have, merely to vex one, a large number of children, all suffering from tuberculosis."

The frequency of late marriages is constantly growing in the urban population, as well in the well-off as in the working class; in the case of the latter for financial reasons. In consequence, the age of the mother at the birth of the first child is higher than formerly. Young couples often do all they can to prevent the birth of the child during the first years of their marriage. Probably this has an influence upon the number of children born in these marriages.

Owing to the large development of social insurance, and especially of the Health Insurance, in this country, it is of interest to

discuss the influence (positive or negative) of these institutions upon fertility. From many indications contained in the replies one gets the impression that the institutions of the Health Insurance interpret rather free health indications, on the ground of which abortion can be legally made. In addition, help is provided in all cases of haemorrhages, and infection resulting from abortion made by bunglers.

The following characteristic quotation is taken from one of the replies: "A large number of patients now get legal medical help from the Health Insurance, and that for the following reasons. A patient who has decided to have an abortion will do so even if the procedure involves the greatest danger. She will make the beginning herself, or ask a midwife to help her, and then she legally applies for medical help, and the medical practitioner working in the Health Insurance must try to bring all this to a satisfactory end, in much more difficult conditions. The procedure will lead to a prolonged illness, and overburden the Health Insurance with expenses for treatment and cash benefits. Therefore it is in the interests of the patient and of the Health Insurance as well that the operation should be made *lege artis* by the doctor. Then the patient returns to work after a few days. It is why medical practitioners of the Health Insurance often give "liberally permission for abortion, on account of tuberculosis, general exhaustion, or anaemia. In such cases, abortion is made in the gynaecological department of the Health Insurance."

Probably there is some exaggeration in the statement, as we find no similar indications in other replies. Such an attitude of medical practitioners serving the Health Insurance towards abortion is not general, and the number of abortions made *ex consilio* must not be very high, otherwise this would be mentioned by our correspondents. The question is quite different, if the so-called "ending of abortions" is considered. Here, in point of fact, the Health Insurance plays an important rôle, and this is burdensome for the Institution.

Finally, in one of the replies we find an almost idyllic picture, bringing us back to the epoch of matriarchy, and showing very definitely the influence of social insurance on fertility. The most interesting part of the reply is quoted below without comments:

"It is of interest to note that women working in the State Tobacco Factories have numerous families. To my mind, this fact is due to the influence of social insurance, especially of the Health

Insurance. Women working in the State Tobacco Factories have many children, as they know that they will not be dismissed on account of pregnancy, that they will get full pay and leave for eight weeks, and in addition a cash benefit for those who feed the children themselves. Returning to work, they do not neglect their children, they bring them to the nursery attached to the factory, where the child remains under the supervision of well-trained nurses and a doctor. Working mothers get also some help from the factory in the form of food products.

Elder children are sent to summer colonies. All this encourages the women to have children, and to make a better home. The number of divorces is insignificant, and in no case does the divorce impair the conditions of the mother and the child, as the mother is the head of the family, which is maintained by her work."

BETRACHTUNGEN ZUR GEGENWÄRTIGEN BEVÖLKERUNGSGLIEDERUNG DEUTSCHLANDS

Von Dr. FRITZ NEUMARK

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Einleitende Bemerkungen

Am 16.6.1933 fand im Deutschen Reich eine umfassende Volks-, Berufs- und Betriebszählung statt, deren Grundlage ein Gesetz vom 12.4.1933 bildete. Schon wenige Wochen nach dem Stichtage begann das Statistische Reichsamt mit der Veröffentlichung einiger vorläufiger Ergebnisse, und gegenwärtig (knapp zwei Jahre nach den Zählungen) liegen für alle Zählungsarten so viele teils vorläufige, teils endgültige Statistiken* vor, dass diese in ihrer Gesamtheit bereits gestatten, sich ein ziemlich zuverlässiges und vollständiges Bild von der gegenwärtigen Gliederung der Reichsbevölkerung zu machen.

Im folgenden wird versucht, anhand jener Veröffentlichungen in grossen Umrissen die wichtigsten Zählungsergebnisse darzustellen sowie die Hauptlinien der neuern demographischen Entwicklung Deutschlands aufzuzeigen. Vergleiche mit der Vergangenheit und internationale Vergleiche mussten aus Raumgründen stark beschränkt werden, und ferner konnten den neuesten Tendenzen der natürlichen Bevölkerungsbewegung im Rahmen dieses Aufsatzes nur wenige Worte gewidmet werden.

Gesamtgrösse der Deutschen Reichsbevölkerung (Gegenwärtiger Stand, Entwicklung und Internationale Bedeutung)

Am Volkszählungstichtage betrug die sogenannte *ortsanwesende Bevölkerung* 65,34 Mill. ohne, und ca. 66,16 Mill. mit der Saarbevölkerung. Wie üblich, blieb die — rechtlich massgebende — sogenannte *Wohnbevölkerung* mit 65,22 bzw. 66,04 Mill. um ein geringes (ca. 1/4%) hinter den ersterwähnten Zahlen zurück.†

Um die Bedeutung dieser ungegliederten Millionenmasse abschätzen zu können, erscheinen einige intertemporale und internationale *Vergleiche* erforderlich.

* Vgl. die einschlägigen Veröffentlichungen in der Halbmonatszeitschrift des Stat. Reichsamts *Wirtschaft und Statistik*, 1933/35, im Statistischen Jahrbuch für das Deutsche Reich 1934, sowie im Sonderheft No. 12 zu *Wirtschaft und Statistik*, Berlin, 1934.

† Über die Gründe dieser Differenzen (psychologisch verständliche Doppelzählungen vorübergehend Abwesender) vgl. u.a. Franz Hiess, *Methodik der Volkszählungen*, Jena, 1931, S.30/31.

1. Zunächst ist festzustellen, dass die gegenwärtige Reichsbevölkerung von rund 66 Mill. Menschen noch um reichlich 1 1/2 Mill. unter der Zahl liegt, die für Mitte 1914, also die Zeit unmittelbar vor Beginn des Weltkriegs, für das *damalige* Reichsgebiet errechnet wurde.* Ferner betont das Statistische Reichsamt,† dass "innerhalb der heutigen Grenzen des Deutschen Reichs . . . nur etwa 2/3 aller Deutschen" leben, sofern man—unter Absehung von den sonst so stark betonten rassischen sowie staatsrechtlichen etc. Gesichtspunkten—als Kriterium des "Deutschtums" lediglich die deutsche *Muttersprache* annimmt. Jene Feststellung ist offenbar demographisch von geringerem Belang als politisch.

Bei der Reichsgründung (1871) wurde für das damalige Reichsgebiet eine (ortsanwesende) Bevölkerung von rund 41 Mill. gezählt. Die Steigerung bis zum Ausbruch des Weltkriegs betrug fast 27 Mill., d.h. fast 2/3 des Anfangsbestands. Für das *jetzige* Reichsgebiet ist für 1871 mit etwa 36 Mill. zu rechnen, die Steigerung bis Mitte 1914 betrug ungefähr 25 Mill., und bis Mitte 1934 kamen weitere 5 Mill. hinzu. Es versteht sich, dass diese Zuwachsziffern *Nettozahlen*, d.h. das Ergebnis des komplizierten Zusammenspiels einer grossen Zahl von Faktoren verschiedener Bewegungsrichtung sind. Darauf kann hier nicht näher eingenangen werden; ich beschränke mich auf die Bemerkung, dass das Anwachsen der Reichsbevölkerung zwischen 1925 und 1933 hinter der natürlichen Bevölkerungsvermehrung (3,1 Mill. Überschuss an Geburten) um rund 264.000 zurückblieb. Diese Zahl (0,42% der Gesamtbevölkerung) stellt also den *Nettoverlust durch Auswanderung* dar; sie bleibt nur unerheblich unter dem *Wanderungsgewinn*, der sich infolge des Zustroms von Flüchtlingen etc. aus den abgetretenen Gebieten zwischen 1925 und 1910 ergeben hatte (330.000).

2. Die *internationalen Unterschiede* im relativen Wachstum der Bevölkerung haben drei Gründe: Einmal die Verschiedenheit der natürlichen Vermehrung; zwar ist der Geburtenrückgang je länger je mehr zu einer internationalen Erscheinung geworden, aber es darf doch nicht übersehen werden, dass einzelne Länder sich ihm bislang widersetzt haben und dass Stärke und Schnelligkeit des Rückgangs von Land zu Land erheblich variieren, wozu noch Verschiedenheiten in der Entwicklung der Sterblichkeitsverhält-

* Die letzte Volkszählung von 1910 hatte eine ortsanwesende Bevölkerung von fast genau 65 Mill. ergeben.

† Vgl. *Wirtschaft und Statistik*, 1933, S. 386.

nisse hinzutreten. Zweitens ist zu bedenken, dass die Ergebnisse der natürlichen Bevölkerungsentwicklung mehr oder minder stark durch Ein- und Auswanderung modifiziert werden. Drittens schliesslich spielen gerade für die neuere Zeit die bevölkerungsmässigen Auswirkungen politischer Grenzverschiebungen eine grosse Rolle bei der Veränderung der *demographischen Gewichte* der verschiedenen Völker.

Sieht man von den *Ursachen* der Verschiedenheit des Wachstums der nationalen Bevölkerungen ab, um lediglich die *Ergebnisse* ins Auge zu fassen, so zeigt sich folgendes:

Die Gesamtbevölkerung der Länder Deutschland, Frankreich, Grossbritannien, Italien, Russland, Polen, Japan und Ver. Staaten betrug um das Jahr 1870 etwa 290 Mill., um 1900 etwa 410 und um die Mitte des Jahres 1934 etwa 600 Mill. Die Steigerung belief sich mithin bis 1900 auf rund 40%, zwischen 1870 und 1934 auf mehr als 100%. Bis zur Jahrhundertwende hielt sich die Vermehrung der Bevölkerungen Deutschlands, Grossbritanniens, Japans und Russlands *ungefähr* im Rahmen der durchschnittlichen Steigerung, hinter der das Wachstum der italienischen (Auswanderung!) und namentlich der französischen Bevölkerung (frühzeitiger scharfer Geburtenrückgang!) mehr oder minder stark zurückblieb, während das der Ver. Staaten (Einwanderung!) sie erheblich übertraf. Die seitherige Entwicklung war weit *ungleichmässiger* und hat die bereits bestehenden Unterschiede im "demographischen Gewicht" der einzelnen Länder ausserordentlich vergrössert. Die russische und namentlich die amerikanische Bevölkerungsvermehrung waren im Laufe der letzten 3 1/2 Jahrzehnte weit über Durchschnitt stark, die japanische entsprach diesem etwa, während die der übrigen Länder — von dem Sonderfall Polen abgesehen — hinter dem Durchschnitt zurückblieb.

Als Ergebnis zeigt sich, dass Russland und die Ver. Staaten heute zusammen rund die Hälfte der Gesamtbevölkerung der fraglichen 8 Länder in sich vereinigen, gegen nur rund 40% um 1870. Japan* behauptete ziemlich unverändert seinen Platz mit rund 11% der Gesamtbevölkerung, Polen, der durch die politischen Ereignisse neuentstandene, übrigens auf eine starke natürliche Vermehrungstendenz sich stützende Faktor, beansprucht immerhin schon die Hälfte des letzterwähnten Anteilsatzes. Das "demographische Gewicht" aller übrigen Länder hat sich mehr oder weniger erheblich reduziert, und zwar sank der Anteil (1934:

* Nur "eigentliches Japan," also ohne Korea, Formosa, etc.

1871) an der Gesamtbevölkerung der betrachteten Staaten für Deutschland von 14,2% auf 11%, für Grossbritannien von 11% auf 8,4%, für Italien von 9,3% auf 7,1% und für Frankreich von 12,2% auf 7,1%.

Wenn auch diese demographischen Relationen nicht *allein massgebend* oder auch nur schlechthin *ausschlaggebend* für die internationale ökonomische und politische Machtverteilung sind, so haben doch die angedeuteten Verschiebungen grosse Bedeutung für die Dynamik des politischen und wirtschaftlichen Geschehens. Es genügt der Hinweis auf die neueste, aufsehenerregende Entwicklung von Wirtschaft und Politik in Japan, die gewiss nicht zuletzt durch den bekannten "Bevölkerungsdruck" in diesem Lande* ausgelöst wurde, sowie auf die modernen populationistischen Massnahmen in Deutschland, Frankreich, Italien usw., die weniger durch die Furcht vor einer Stagnation der betreffenden Bevölkerungen *an sich*, als vielmehr vor den ökonomisch-politischen Folgen der zu erwartenden *internationalen* Verschiebung—und das heisst: Verringerung—der *relativen* "demographischen Gewichte" bestimmt sind.

Abschliessend ist festzustellen, dass die *deutsche* Bevölkerung, deren Wachstum bis zur Jahrhundertwende dem internationalen Durchschnitt ungefähr entsprach, seitdem hinter diesem nicht unerheblich *zurückgeblieben* ist. Dafür waren einmal der relativ scharfe deutsche Geburtenrückgang, zum anderen die Bevölkerungsverluste durch den Weltkriegsausgang massgebend. Das Ergebnis ist, international geschen, eine starke Verringerung des "demographischen Gewichts" der Reichsbevölkerung, und zwar hat sich dieses relative "Gewicht" (bezogen auf die Gesamtbevölkerung der angeführten 8 Länder) zwischen 1871 und 1900 um nur etwa 3%, zwischen 1900 und 1934 aber um 20% verringert.

Bevölkerungsdichte

Auf 1 qkm kamen 1933 im Deutschen Reich 140 Menschen. Gegenüber der letzten Volkszählung ist die Bevölkerungsdichte um rund 4% gestiegen.

* Vgl. zu dieser Frage u.v.a. A Reichwein, Bevölkerungsdruck in Ostasien, *Archiv f. Sozialw. u. Sozialpol.* Bd. 68 (1932), S.1 ff., *The Japanese Population Problem and World Trade*, Tokyo, 1933, und namentlich W. R. Crocker: *The Japanese Population Problem*, London, 1931.—Japan, und ebenso Italien, erblickt in seiner relativ hohen Volkszahl ein "moralisches" Argument zugunsten kolomialer Expansionsbestrebungen.

Im Vergleich zu anderen Ländern ist Deutschland ein Land *mittlerer Bevölkerungsdichte.* Es steht in dieser Hinsicht ungefähr Italien gleich, während die Bevölkerungsdichte Belgiens, Hollands und Grossbritanniens 1 1/2 bis 2 mal so gross, die Frankreichs, Polens und Österreichs nur etwa halb so gross ist. Angesichts der Tatsache, dass immer wieder aus der blossen Tatsache einer, international betrachtet, relativ hohen Bevölkerungsdichteziffer "Bevölkerungsdruck," "Übervölkerung" usw. gefolgert werden,* mag folgendes—eigentlich Selbstverständliche—gesagt werden:

Einmal beruht die Bevölkerungsdichtezahl als Ausdruck des *durchschnittlichen* Verhältnisses von Menschenzahl und Flächengrösse eines Landes "auf der Fiktion einer gleichmässigen Verteilung der Bevölkerung über die betrachtete Fläche."† Nun ist aber der heuristische Wert dieses Zahlenausdrucks in erheblichem Umfange abhängig davon, wie stark die innerstaatlichen und internationalen Unterschiede in der Verteilung der Bevölkerung sind, wie gross also die Spannung zwischen Fiktion (*gleichmässiger* Verteilung) und Wirklichkeit ist. Und zum anderen: es kommt nicht nur auf die formale Zahl, sondern auch auf deren reale Bedeutung an, das heisst: die wirtschaftlichen *Qualitäten* des Bodens *und* der Menschen. Bekanntlich ist Industrialisierung tendenziell von Bevölkerungsvermehrung bzw. agglomeration begleitet, zugleich aber auch von einer Steigerung des Sozialprodukts, die weitgehend unabhängig von der Bodenfläche ist. Beinhaltet ferner die Fläche eines Agrarlandes oder agrarischen Landesteils grosse Strecken Wüsten, Einöden, Gebirgsländereien usw., so hat die Bevölkerungsdichtezahl natürlich eine völlig andere Bedeutung, als die gleiche Ziffer in einem Lande mit höherem Anteil kultivierbaren oder fruchtbareren Bodens. Es ist daher offenbar sinnlos, aus der Tatsache, dass etwa in gewissen Teilen Sachsens, Württembergs oder Thüringens annähernd die gleiche Bevölkerungsdichte besteht, wie in den dichtbesiedelten Gebieten Nord- und Zentralchinas,‡ irgendwelche allgemeinen wirtschaftspolitischen Schlussfolgerungen zu ziehen. Denn zwischen diesen Gebieten und ihren Bevölkerungen herrscht

* Vgl. statt vieler anderer F. BURGDOERFER, Artikel "Bevölkerungsstatistik," *Handwörterbuch der Staatswissenschaften,* 4. Aufl., Ergänzungsband, 1929, S. 105.

† WINKLER, *Grundriss der Statistik II,* Gesellschaftsstatistik, Berlin 1933, S. 43.

‡ Vgl. J. L. BUCK, "Agriculture and the Future of China," *Annals,* 1929, S. 110.

(materielle) Unvergleichbarkeit, da die Einheiten (materiell) "ungleichartig" oder—besser—"ungleichwertig" sind.* Ebenso ist auch die gegenüber Deutschland soviel höhere Bevölkerungsdichte eines Landes wie Holland durchaus nicht ohne weiteres als Ausdruck eines entsprechend oder überhaupt grösseren "Bevölkerungsdrucks" anzusehen.

Eine nähere Betrachtung der Bevölkerungsdicht der einzelnen *Gebietsteile* Deutschlands zeigt, dass die Industriegebiete, also Freistaat Sachsen, Rheinland-Westfalen, ferner die Länder Hessen, Baden und gewisse Teile Württembergs und Thüringens eine relativ hohe Bevölkerungsdichte aufweisen, während in den agrarischen Gebieten Mecklenburgs und der östlichen Provinzen Preussens Ziffern anzutreffen sind, die nur 10–20% von jener ausmachen, obwohl z.B. die Provinzen Ostpreussen und Oberschlesien mit zu den Gebieten gehören, in denen sich die Bevölkerungsdichte gegenüber 1925 relativ am stärksten gehoben hat—ein Ergebnis, das mindestens für Ostpreussen grossenteils als Auswirkung der besonderen Förderungsmassnahmen der Reichswirtschaftspolitik für diese Grenzprovinz anzusehen ist.

Verteilung der Bevölkerung auf Stadt und Land

1. In Deutschland leben nach der neuesten Volkszählung (ohne Saargebiet) 21,5 Mill. Menschen "auf dem Lande," d.h. in Gemeinden mit weniger als 2000 Einwohnern, 43,7 Mill. "in der Stadt," d.h. in Gemeinden mit 2000 und mehr Einwohnern. Reichlich 2/3 der Reichsbevölkerung sind also in diesem Sinne "*städtisch*," ein Drittel ist "*ländlich*," während zur Zeit der Reichsgründung das umgekehrte Verhältnis obwaltete (36% städtisch, 64% ländlich). In dieser Gegenüberstellung spiegelt sich die oekonomisch-soziale Revolution wider, die die stürmische Industrialisierung Deutschlands auch für die Siedlungsweise der Bevölkerung bedeutete. Der gesamte riesige Bevölkerungszuwachs der letzten sechs Jahrzehnte kam aussschliesslich den Städten zugute.

Gegenüber 1925 ist der Anteil der städtischen Bevölkerung von 64,4% auf 67%—bei entsprechender Abnahme des ländlichen Anteils—gestiegen. Dabei hat sich insbesondere der der mittel-

* Über die Begriffe der "Ungleichartigkeit" und "Ungleichwertigkeit" statistischer Einheiten vgl. die verschiedenen einschlägigen Aufsätze von F. Zizek und P. Flaskaemper in den Jahrgängen 1928/31 des *Allgemeinen Statistischen Archivs*, Jena (insbes. Zizek, a.a.O. 1928, S. 393 ff. und 1930, S. 8 ff.) sowie die dort angeführte weitere Literatur.

und grosstädtischen Bevölkerung gehoben. Die *Grossstadtbevölkerung* allein beträgt heute über 30% der Gesamtbevölkerung; sie hat damit ihre relative Bedeutung gegenüber dem Stand um die Jahrhundertwende (1900: 16,2%; 1871 erst 4,8%!) nahezu verdoppeln können. Aus den acht Grosstädten mit insgesamt 2 Mill. Einwohnern zur Zeit der Reichsgründung sind heute 51 Grossstädte mit rund 20 Mill. Einwohnern geworden.

Bekanntlich ist die Bevölkerungsagglomeration in den Städten und namentlich den Grosstädten alles andere denn eine Folge entsprechend hoher Fruchtbarkeit, vielmehr macht in Deutschland wie fast überall die städtische Geburtenziffer nur einen Bruchteil der ländlichen aus. Nach den neuesten Feststellungen* betrug z.B. 1933 die "rohe" Geburtenziffer in den Grossstädten mit 11,2‰ nur wenig mehr als 60% der der ländlichen Gebiete (18‰). Noch drastischer ist die Tatsache, dass die Grosstädte 1933 zu dem gesamten Geburtenüberschuss dieses Jahres (227.000) nur knapp 4000 = 1,6% beisteuerten, obwohl sie 30% der Gesamtbevölkerung umfassten, während die ländlichen Gemeinden (ein Drittel der Bevölkerung) 140.000 = 61,4% des Gesamtüberschusses an Geburten lieferten. Das erscheint verständlich, wenn man berücksichtigt, dass in neuerer Zeit in nicht wenigen Städten sogar ein Sterbefallüberschuss bestand (1933 in 70 Gemeinden, darunter 14 Grosstädte). Erst 1934 ist, dank dem noch zu erwähnenden Umschwung aller demographischen Bewegungsvorgänge, darin wieder ein Wandel eingetreten, sodass in diesem Jahre sämtliche Grosstädte einen Geburtenüberschuss hatten.

Nach allem ist die Ursache der Steigerung des städtischen Anteils an der Gesamtbevölkerung—abgesehen von dem "statistischen" Anwachsen durch Eingemeindungen, Überschreitung des "kritischen" statistischen Punktes usw.†—ausschliesslich in den *Binnenwanderungen* ("Landflucht") zu erblicken, die die ländliche Bevölkerung schon in den neunziger Jahren unter ihren *absoluten* Stand zur Zeit der Reichsgründung sinken liessen.

Interessant ist nun aber, dass die relative Bevölkerungszunahme zwischen 1925 und 1933 in den Grosstädten (innerhalb ihrer heutigen Gemarkungen) mit rund 5% nicht unerheblich hinter dem Wachstum der Mittel-und Land- sowie namentlich der

* Vgl. *Wirtschaft und Statistik*, 1935, S. 76ff.

† Zur Veranschaulichung der Bedeutung dieses Moments: bei Zugrundelegung des damaligen Gebietsstands betrug der Grosstadtanteil 1925: 26,8%, bei Zugrundelegung des Gebietsstandes vom 1.1.1934 aber 30,1%, also fast so viel wie 1933 (30,4%).

Kleinstädte* zurückblieb, von denen die letzten z.B. um 8% wuchsen. Es kommt hinzu, dass die bisherige "künstliche" Zunahme der Grosstädte seit 1930, unter den Wirkungen der Krise sowie neuerdings auch unterstützt durch gewisse siedlungs- und arbeitsmarktpolitische Regierungsmassnahmen ("Zuzugsperren" u. dgl.), in ihr Gegenteil umgeschlagen ist. Zwischen 1930 und 1933 ergab sich ein Bevölkerungsverlust der Grosstädte von reichlich 0,35 Mill. Ob darin eine *dauerhafte* neue Tendenz zum Ausdruck kommt, lässt sich noch nicht sagen, dürfte aber eher zu bezweifeln sein.

2. *International* gesehen steht Deutschland hinsichtlich der relativen Bedeutung seiner Grosstadtbevölkerung etwa in gleicher Linie mit Holland und den Ver. Staaten (27,2 bzw. 29,6%). Sieht man von den Ausnahmefällen des (im allgemeinen äusserst dünn besiedelten) Australien und Österreichs (Wien!) ab, so nimmt Deutschland in der Welt den zweiten Platz hinter Grossbritannien (40%; einschliesslich der Londoner Vororte: 45%) ein, während Länder mit "gemischter Wirtschaftsstruktur" wie Frankreich und Italien, ferner die Schweiz und Japan, mit 16–17% grosstädtischem Bevölkerungsanteil wenig mehr als die Hälfte der deutschen Quote besitzen. Zu beachten ist aber überdies, dass sich der Anteil der Grosstadtbevölkerung in Grossbritannien, Frankreich usw. innerhalb der letzten zwei, drei Jahrzehnte kaum mehr verändert hat, während in den Ver. Staaten, Italien und Schweden ein ähnlich starkes relatives Wachstum wie in Deutschland festzustellen ist.

In den kleinsten Gemeinden mit weniger als 10.000 Einwohnern, die überwiegend ländlichen Charakter haben, wohnt gegenwärtig ziemlich genau die Hälfte der Reichsbevölkerung; das ist ungefähr ebenso viel wie in den Ver. Staaten, Belgien und Italien, aber wesentlich mehr als in Grossbritannien (26%) und Holland (36%). Dagegen betrug die entsprechende Quote in den ost- und südosteuropäischen Staaten sowie in Skandinavien noch zwischen 73 und 86%, in Frankreich immerhin noch 62%.

Altersgliederung der Bevölkerung

Im Hinblick auf die Form, die die graphische Darstellung des Altersaufbaus einer Bevölkerung "normalerweise" zu haben pflegt, spricht man bekanntlich von einer "*Alterspyramide.*" Das

* Gemeinden mit 2-unter 5.000, 5-unter 20.000 bzw. 20-unter 100.000.

Bild der gegenwärtigen Altersgliederung der Reichsbevölkerung weist demgegenüber derartige *Anomalien* auf, dass von einer "Pyramide" nur mehr in recht eingeschränktem Sinne gesprochen werden kann. Wenn man auch von den unmittelbaren Auswirkungen des Weltkriegs absieht, die sich hauptsächlich in einer starken "Einbuchtung" bei den Altersklassen der 15–19 Jährigen beiderlei Geschlechts (Geburtenausfälle 1915/18!) und der durch die Kriegsverluste bedingten Lücke bei den heute (1933) 34–60 jährigen Männern äussern, so bleibt doch die auffallende *Schrumpfung der "Pyramidenbasis"* als Folge des *Geburtenrückgangs*.

Der Anteil der unter 6 Jährigen an der Gesamtbevölkerung ist von 14,3% in 1910 auf 11,5% in 1925 und weiter auf 9% in 1933 *gesunken*. Rechnet man die 6—unter 14 Jährigen hinzu, so beträgt der Anteil der "Kinder" insges. gegenwärtig rd. 23% gegen rd. 32% in 1910; gegenüber 1925 (knapp 24%) ist die Veränderung gering. Die mittleren und namentlich auch die höheren Altersklassen haben umgekehrt an Bedeutung *gewonnen*. Die 14—unter 65 Jährigen machen gegenwärtig, wie auch schon 1925, rd. 70% der Bevölkerung aus, gegen rd. 63% in 1910, die "Greise" (65 Jahre und darüber) 7% gegen knapp 6% in 1925 und nur 5% in 1910. Absolut haben die "Greise" gegen 1910 um rd. 1 3/4 Mill. zugenommen, während die absolute Zahl der unter 6 Jährigen um fast 2 1/2 Mill. niedriger ist.

Auf die wirtschaftliche, soziale und demographische Bedeutung dieser Wandlungen des Altersaufbaus kann hier nicht näher eingegangen werden. Ich erwähne nur noch, dass auch die neueste Altersaufbaustatistik wieder deutlich zeigt, wie gross die *Unterschiede zwischen Stadt und Land* sind. So stellten z.B. die Personen im Alter bis 14 1/2 Jahre auf dem Lande (1933) rd. 28%, in den Grosstädten aber nur reichlich 18% der Gesamtbevölkerung dar, während die Anteile der 25 1/2–65 1/2 Jahre Alten 47% und 58 1/2% ausmachten. An den Unterschieden des ländlichen und (gross-) städtischen Altersaufbaus ist natürlich vornehmlich die verschiedene Geburtenhäufigkeit beteiligt, doch kommt daneben den *Binnenwanderungen* ("Landflucht"), die hauptsächlich die voll arbeitsfähigen Alterklassen betreffen, eine grosse Bedeutung zu (vgl. oben S.).

Ein *internationaler Vergleich* zeigt, dass die Altersstruktur der Reichsbevölkerung ziemlich genau mit derjenigen übereinstimmt, die andere Länder mit starker Geburtenrückgangstendenz aufweisen. Der Anteil der unter 15 Jährigen z.B. (in Deutschland

1933 = reichlich 24% der Bevölkerung) beträgt in Grossbritannien, Österreich, der Schweiz usw. zwischen 25 und 27%, in Frankreich (1926) gar nur reichlich 22%, während geburtenreiche Länder wie Spanien, Polen, Italien, Griechenland, Holland usw.— von Japan und Russland zu schweigen—"Kinderquoten" besitzen, die zwischen 30 und 35% liegen. Der Anteil der 60 Jahre und darüber Alten, im Reich = etwa 11%, entspricht ebenfalls ungefähr demjenigen in Grossbritannien, Österreich, Schweden und der Schweiz (10–12%), wird aber von Frankreich (14%) erheblich übertroffen; in Polen, Griechenland, Holland usw. beläuft sich die fragliche Quote dagegen nur auf 7–9%.

Abschliessend ist zu sagen, dass mit Rücksicht auf die *wechselseitigen* demographischen Beziehungen zwischen Altersgliederung und Geburtenhäufigkeit die gegenwärtige "Alterspyramide" des Reichs bereits derartig "deformiert" erscheint, dass nur eine (in diesem Ausmass kaum zu erwartende) *ungewöhnliche* Steigerung der Geburten die Wirkungen kompensieren könnte, die der Geburtenrückgang der letzten Jahrzehnte auf die Altersstruktur und damit auch die künftige natürliche Bevölkerungsbewegung bereits gehabt hat.

Geschlechtliche Gliederung der Bevölkerung

Wie bekannt, hat sich der in den meisten europäischen Ländern anzutreffende *Frauenüberschuss* der Bevölkerung infolge der Kriegsverluste an Männern zunächst erheblich verstärkt. War vor dem Kriege in Deutschland das Verhältnis von Männern und Frauen 1000: 1029, so betrug es 1919 1000: 1101. Eine gewisse Rückbildung war schon 1925 (1000: 1067) festzustellen, und die neueste Volkszählung zeigt mit 1000: 1059 eine weitere Annäherung an die Vorkriegsproportion.*

Zwischen 1925 und 1923 nahm die männliche Bevölkerung um rund 5%, die weibliche dagegen nur um rund 4% zu. Allerdings verbergen sich hinter diesem Gesamtergebnis erhebliche örtliche Unterschiede. In den meisten überwiegend *agrarischen* Landesteilen Nordost- und Ostdeutschlands war die Differenz zwischen

* An der Rückbildung des anomal hohen Frauenüberschusses der Gesamtbevölkerung war u.a. auch die zeitweilige Erhöhung des "gesetzlichen" Geschlechtsverhältnisses der Neugeborenen (Knaben: Mädchen = 1060: 1000) auf über 1070 (Maximum: 1919 = 1085) in dem Jahrzehnt 1916/25 beteiligt. Seither hat sich angenähert das früher übliche Verhältnis wieder herausgebildet.

männlichem und weiblichem Bevölkerungswachstum weit grösser, als im Reichsdurchschnitt, ja, in einzelnen Gebieten ist sogar eine absolute *Abnahme* der weiblichen Bevölkerung festzustellen. Andererseits weisen gewisse *Industriezentren* eine, die der männlichen übersteigende *Zunahme* der weiblichen Bevölkerung auf (Rheinland-Westfalen, Saar usw.). All dies ist natürlich das Ergebnis bestimmter, ökonomisch-sozial motivierter Tendenzen der Binnenwanderungen, die eben dazu führten, dass in den meisten Gebieten mit überdurchschnittlichem Wanderungsverlust (Ostdeutschland, Mecklenburg) der Frauenüberschuss unterhalb des Reichsdurchschnitts blieb: Wirkungen der *Binnenwanderungen* deshalb, weil aus bekannten Gründen die *Auswanderungs*—Verluste an Männern fast doppelt so hoch waren, wie die an Frauen (172.000: 92.000).—Man kann sagen, dass der Frauenüberschuss heute eine fast ausschliesslich *städtische* Angelegenheit ist. Die kleinsten *ländlichen* Gemeinden weisen sogar im allgemeinen einen *Männerüberschuss* auf.* Im Reichsdurchschnitt halten sich auf dem Lande (also in Gemeinden mit weniger als 2000 Einwohnern) Männer und Frauen ziemlich genau die Waage. Dagegen wächst der Frauenüberschuss in den Städten nahezu ausnahmslos parallel der Bevölkerungsgrösse; er beträgt in den Landstädten 45‰, in den Kleinstädten 67‰, in den Mittelstädten 85‰ und in den Grosstädten 114 (Berlin allein: 169)‰.

Konfessionelle Gliederung der Bevölkerung

Reichlich 95% der Gesamtbevölkerung (ohne Saar) gehören den beiden *christlichen* Haupt-Konfessionen an, und zwar entfallen auf *römisch-katholische* Christen 32,5%, auf *evangelische* 62,7%. Der Rest setzt sich aus *Israeliten* (rund 1/2 Mill. = 0,8% der Gesamtbevölkerung) und *"Sonstigen"* (4,1%) zusammen. Die letztgenannte Bevölkerungsgruppe ist zum allergrössten Teil identisch mit *"Gemeinschaftslosen,"* d.h. Personen, die sich keiner Religionsgemeinschaft zurechnen.

Vergleicht man diese konfessionelle Struktur der deutschen Bevölkerung mit der des Jahres 1910 für das *damalige* Reichsgebiet, so ergibt sich, dass die bedeutsamsten Veränderungen in einer *Abnahme des katholischen Anteils*—eine Folge vorwiegend

* Dementsprechend haben bekanntlich koloniale Einwanderungsländer (Ver. Staaten, Kanada, Südamerika) sowie gewisse Agrarländer des Balkans, wie Bulgarien, einen *Männerüberschuss* der Bevölkerung.

der Gebietsabtretungen aufgrund des Versailler Vertrags* — und einer *Zunahme der "Sonstigen"* — Folge der lebhaften Inanspruchnahme der Erleichterungen des Kirchenaustritts—zu erblicken sind. Der Anteil der "Sonstigen" stieg von 0,5% auf über 4%. Diese Bewegung hat sich zu einem erheblichen Teil erst zwischen den beiden letzten Volkszählungen vollzogen; denn noch 1925 betrug die fragliche Quote erst 2,5%. Dass davon überwiegend die evangelische Kirche betroffen wurde, geht daraus hervor, dass der Anteil der dieser angehörenden Personen von 64,2% auf 62,7% sank, während der der katholischen Kirche sich voll behaupten konnte.†

Die Senkung der Quote der *Israeliten* ist eine Erscheinung, die keineswegs neu ist; vielmehr hielt die Steigerung der Zahl der deutschen Juden schon seit den neunziger Jahren des vorigen Jahrhunderts mit der allgemeinen Bevölkerungszunahme nicht mehr Schritt.‡ Betrug der Anteil der Israeliten an der Reichsbevölkerung 1880 noch 1,1%, so war er kurz vor dem Kriege schon auf 0,9% gesunken, ein Anteilssatz, der 1925 noch behauptet wurde, um dann bis Mitte 1933 auf 0,76% zu sinken. Dabei ist bemerkenswert, dass neuerdings die Zahl der deutschen Juden zum ersten Mal seit einem Jahrhundert auch *absolut* abgenommen hat, und zwar betrug diese Abnahme 1933 gegen 1925 64.000 = 11,3%. In dieser Entwicklung spiegeln sich verschiedene Tendenzen wider: einmal der besonders starke (und: frühe) Geburtenrückgang der Israeliten,§ der nur zu einem kleinen Teil durch Zuwanderung aus dem Osten kompensiert wurde; zum zweiten die Zunahme der Austritte aus der Religionsgemeinschaft und der Mischehen; drittens aber auch schon die sogenannte "Arier-Gesetzgebung" der nationalsozialistischen Regierung, die freilich bis zum Volkszählungsstichtag nur in ihren ersten Auswirkungen sich geltend machen konnte. In diesem Zusammenhange ist übrigens zu beachten, dass die angeführten Ziffern nur die *Konfession*, nicht aber die sogenannte *Rassenzugehörigkeit* betreffen. Die genaue Zahl der "Nicht-Arier" ist bis heute noch unbekannt.

* In den verloren gegangenen Gebieten wohnten knapp 2 Mill. Evangelische und 5 Mill. Katholiken.

† Allerdings ist dabei auch die unterschiedliche Fruchtbarkeit und Siedlungsweise der beiden Konfessionen in Rücksicht zu ziehen.

‡ Vgl. hierzu und zum folgenden "Die Juden im Deutschen Reich 1816 bis 1933," in *Wirtschaft und Statistik*, 1935, S. 147 ff.

§ Vgl. u. a. die bekannten Untersuchungen Silbergleits sowie E. Kahn, *Der internationale Geburtenstreik*, Frankfurt a.M. 1930, S. 32 ff., und Theilhaber, *Der Untergang der deutschen Juden*, 2. Aufl. Berlin 1921.

Eine Kombination der Statistiken über die geschlechtliche und konfessionelle Gliederung der Reichsbevölkerung zeigt als bedeutsamsten Punkt ein ganz erhebliches Überwiegen der Männer bei den "Sonstigen," d.h. praktisch bei den Gemeinschaftslosen, von denen über 60% Männer sind, gegen 48% bei Christen und Israeliten. Dieser Unterschied erklärt sich unschwer aus der Tatsache, dass Frauen gemeinhin traditionalistischer als Männer und daher weniger geneigt sind, Bindungen, besonders auch religiöse, abzustreifen. Entsprechendes gilt auch für die ländliche im Vergleich zur städtischen Bevölkerung, aus welchem Grunde der Prozentsatz der "Sonstigen" in den Gemeinden mit weniger als 10 000 Einwohnern 1,4%, in Grosstädten dagegen 8,4% ausmacht.

Auch die Israeliten sind, was mit ihrer geschichtlich bedingten beruflich-sozialen Gliederung zusammenhängt, überwiegend Stadtbewohner. Während sie in Gemeinden mit unter 10.000 Einwohnern nur mit 0,2% vertreten sind, erreicht ihr Anteil an der deutschen Grosstadtbevölkerung das Neunfache dieses Satzes (1,8%). Trotzdem, und obwohl heute über 70% aller deutschen Juden Grosstädter sind, ist ihr *Anteil* an der Grosstadtbevölkerung seit 50 Jahren ständig gesunken, und zwar von 4,1% in 1880 auf 2,4% in 1910 und 1,8% in 1933.

Was schliesslich die *regionale Gliederung* der Angehörigen der christlichen Konfessionen betrifft, so ist das Reichsdurchschnittsverhältnis von Evangelischen und Katholiken (etwa 2 : 1) bekanntlich das Ergebnis einer sehr unterschiedlichen Verteilung. Es gibt Gebiete, in denen der evangelische Bevölkerungsanteil bis auf 90% oder sogar darüber steigt (Ostdeutschland, Hannover, Sachsen, Thüringen, Mecklenburg), aber auch andere, die einen ensprechend hohen Anteil Katholiken aufweisen (Ober- und Niederbayern, Oberpfalz, Hohenzollern, Oberschlesien und gewisse rheinische Bezirke). Entsprechend dem häufigen Zusammentreffen von katholischer Konfession und ländlicher Siedlungsweise ist der Anteil der katholischen Bevölkerung in den Kleingemeinden mit 38,5% erheblich stärker, als im Durchschnitt der Grosstädte (28,5%).

Gliederung der Bevölkerung nach der Staatsangehörigkeit

Von der Wohnbevölkerung des Reichs (ohne Saar) besassen 0,76 Mill. Personen = 1,2% nicht die deutsche Staatsangehörig-

keit, waren also "*Ausländer*" im weiteren Sinne. Abgesehen von einem unbeachtlichen Rest, dessen Staatsangehörigkeit nicht ermittelt werden konnte, setzte sich jene Gruppe aus 0,67 Mill. Ausländern mit einer bestimmten, nichtdeutschen Staatsangehörigkeit und 0,09 Mill. Staatlosen zusammen.

In der *Vorkriegszeit* hatte sich die Zahl der Ausländer im Deutschen Reich unablässig *vermehrt*. Absolut wuchs sie zwischen 1871 und 1910 (damaliger Gebietsstand) von 0,21 auf 1,26 Mill., d.h. sie hat sich im Laufe dieses halben Jahrhunderts reichlich versechsfacht. Die relative Steigerung betrug etwa das Vierfache des Ausgangsstandes (5‰ : 19‰ der Gesamtbevölkerung).

Seit dem Weltkriege ist die Entwicklung umgekehrt verlaufen. Schon 1925 hatte die Ausländerzahl sich von 1,13 Mill. in 1910 (jetziges Reichsgebiet) auf 0,96 Mill. *vermindert*, und 1933 ist, wie erwähnt, die letzte Zahl abermals um 0,2 Mill. unterschritten worden. Demgemäss verringerte sich der Anteil der Ausländer an der Gesamtbevölkerung von 19,5‰ in 1910 auf 15,3‰ in 1925 und weiter auf 11,6‰ in 1933. An diesem Rückgange ist die—in Deutschland wie fast überall nationalistisch-restriktive—Arbeitsmarktpolitik sicher nicht unbeteiligt gewesen; vor allem hat sie zu einer erheblichen Verringerung der Zahl ausländischer Wanderarbeiter gegenüber der Vorkriegszeit geführt, wie auch aus der überdurchschnittlich grossen Abnahme der Ausländer in Mecklenburg, Pommern, den Gebieten des Zuckerrübenbaus usw. hervorgeht.

Ihrer *Herkunft* nach stammen (1933) rund drei Viertel aller Ausländer aus Nachbarländern des Reichs. Den grössten Anteil weisen Tschechoslowaken (25% aller Ausländer), Polen (20%), Österreicher (11%) und Holländer (11%) auf; diese 4 Länder stellen also allein rund zwei Drittel aller Ausländer. Die überwiegende Mehrheit ist rein deutschsprachig.

Im Lichte der *internationalen* Statistik stellt sich der Anteil der Ausländer in Deutschland als ziemlich *gering* dar. Hat doch die Schweiz, deren Gesamtbevölkerung nur etwa 6% der deutschen ausmacht, rund die Hälfte soviel Ausländer in ihren Grenzen wohnen wie das Reich, sodass die schweizer Ausländer*quote* (1920 über 10%) fast das Zehnfache der deutschen betrug. In Frankreich lebten 1926 rd. 2 1/2 Mill. Ausländer = 6,2% der Gesamtbevölkerung. Eine wesentlich kleinere Bedeutung hat das Ausländertum dagegen in Italien (1921: 0,11 Mill. = 0,3% der Bevölkerung), in Grossbritannien (1921: rd. 1/4 Mill. = knapp 0,6%), Schweden, Finnland, Litauen usw.

Gliederung der Bevölkerung nach dem Familienstand

Wenngleich die Zusammensetzung einer Bevölkerung nach dem Familienstand auch wesentlich durch die Heiratsfreudigkeit bestimmt wird, die ihrerseits von volkspsychologischen, wirtschaftlichen, sozialen, natürlichen und rechtlichen Faktoren abhängig ist, so kommt doch letztlich der *Altersstruktur*, mit der die Familienstandsgliederung eng korrelliert ist, die entscheidende Bedeutung zu. Es versteht sich daher, dass die oben erwähnten Wandlungen des Altersaufbaus der Reichsbevölkerung auch deren Gliederung nach dem Familienstand stark beeinflussen mussten.

Am auffälligsten ist wohl die starke *Abnahme der Ledigenquote*, die von 58,4% in 1910 auf 52,9% in 1925 und weiter auf 49,2% in 1933 sank—eine Entwicklung, die hauptsächlich eine Konsequenz der relativen Abnahme der "Kinder" darstellt. Entsprechend dem dazu parallel laufenden relativen Wachstum der im heiratsfähigen Alter stehenden Klassen *stieg* die *Verheiratetenquote* von 36,1% (1910) auf 40,8% (1925) bzw. 43,9% (1933). *Zugenommen* hat aber auch die relative Bedeutung der *Verwitweten* (1910: 1933 = 5,3%: 6,1%) sowie namentlich der *Geschiedenen* (0,2% : 0,8%). In der besonders starken Steigerung der Geschiedenenquote spiegelt sich die Erhöhung der Scheidungsziffern wider, die in Deutschland, wie in den meisten anderen Ländern, gegenüber der Vorkriegszeit zu beobachten ist,* übrigens eine vorwiegend städtische Erscheinung (Geschiedene in Grosstädten = 1,6%, auf dem Lande = 0,2% der Bevölkerung).

Wie üblich, ist auch nach der neuesten Familienstandstatistik die Verheirateten- wie die Ledigenquote der Männer grösser als die der Frauen, während umgekehrt die weibliche Geschiedenen- und vor allem die Verwitwetenquote über der männlichen liegt. Dass auf dem Lande die Ledigenquote grösser, die Verheiratetenquote geringer ist, als in der (Gross-) Stadt, ist ebenfalls eine seit langem bekannte Erscheinung, die sich namentlich aus der durch Fruchtbarkeitsunterschiede und Landflucht bewirkten Verschiedenheit der Altersstruktur der ländlichen und städtischen Bevölkerung erklärt.

* Vgl. u.a. *Wirtschaft u. Statistik* 1935, S. 375/76. Darnach hat sich z.B. die Zahl der Ehescheidungen auf 10.000 bestehende Ehen gegenüber 1913 rund verdoppelt.

Haushaltungen und Familien

Die Statistik der Haushaltungen, d.h. nach der Reichsstatistik der "zu einer wohn- und hauswirtschaftlichen Gemeinschaft vereinigten Personen, die eine besondere Wohnung haben und eine eigene Haushaltung führen," liegt für 1933 nur erst in vorläufiger und unvollständiger Form vor; insbes. fehlt noch die Untergliederung in Einzel-, Familien- und Anstaltshaushaltungen.* Immerhin geben die veröffentlichten Ziffern schon einige interessante Fingerzeige für die neuere Entwicklung der Haushaltungen —und: der *Familien*, da ja die Haushaltungsstatistik "sozusagen einen Ersatz für eine Familienstatistik" bietet.†

Vor allem: die Zahl der Haushaltungen, die 1933 (ohne Saargebiet) rund 17,73 Mill. betrug, ist gegenüber 1925 um 2,4 Mill. = mehr als 15% gestiegen, d.h. reichlich dreimal so stark, wie die Einwohnerzahl (4,5%). Die durchschnittliche jährliche Zunahme der Haushaltungen belief sich auf fast 0,3 Mill., gegenüber 170.000 in der Periode 1910/25. Diese Zuwachssteigerung ist eine Folge der ihrerseits 1) mit dem starken Geburtenrückgang und 2) mit der Verlängerung der durchschnittlichen Lebensdauer zusammenhängenden anomalen Altersgliederung der deutschen Bevölkerung. Konkret gesprochen: der Anteil der im heiratsfähigen Alter stehenden Personen an der Gesamtbevölkerung ist zur Zeit ungewöhnlich gross, da die am stärksten besetzten 10 Vorkriegsgeburtenjahrgänge heute in das heiratsfähige Alter eingetreten sind und gleichzeitig der Bestand der stehenden Haushaltungen sich relativ weniger lichtete, als in früheren Jahren unter der Herrschaft ungünstigerer Sterblichkeitsverhältnisse. Es versteht sich jedoch, dass in absehbarer Zeit die Diskrepanz zwischen Steigerung der Haushaltungen und Vermehrung der Bevölkerung geringer werden und schliesslich verschwinden muss.

Vorläufig äussert sich der Geburtenrückgang hauptsächlich darin, dass die *Kopfzahl der Haushaltungen* abnimmt. Auf eine Haushaltung entfielen 1933 nur mehr 3,68 Personen gegen 4,07 Personen in 1925 und 4,53 Personen kurz vor dem Weltkriege. Im Vergleich zu den 70er und 80er Jahren des vorigen Jahrhunderts umfasst eine Haushaltung heute ziemlich genau eine Person

* Als "Anstaltshaushaltungen" werden Gasthöfe, Straf- und Erziehungsanstalten, Kasernen, Klöster u. dgl. bezeichnet.

† Hiess, a.a.O. S. 86; vgl. auch S. 223 ff., sowie Hiess in *Jahrb. f. Nationalök. u. Stat.* Bd. 83 (1933), S. 421 ff., u. Winkler, a.a.O. S. 14 ff.

weniger. Im übrigen liegt aus bekannten Gründen die durchschnittliche Kopfstärke einer Haushaltung in agrarischen Gebieten höher als in Industriegegenden.*

Die soeben angeführten Zahlen geben übrigens noch kein restlos zutreffendes Bild von der durchschnittlichen Haushaltungstärke; denn streng genommen hat die Berechnung der letzteren nur für *Familienhaushaltungen* einen Sinn. Diese stellen zwar bei weitem den überwiegenden Teil (1910 : 92,3%, 1925 : 93,1%)† aller Haushaltungen überhaupt dar, aber ihre Durchschnittsstärke liegt ein wenig *über* dem Durchschnitt, da dieser durch die Einzelhaushaltungen stärker gedrückt als durch die Anstaltshaus haltungen gehoben wird. 1910 z.B. betrug der Gesamtdurchschnitt für alle Haushaltungen 4,53 Personen, für Anstaltshaushaltungen (0,44% aller Haushaltungen) 33,42 Personen, für Einzelhaushaltungen allein (7,29% aller Haushaltungen) 1 Person und für Familienhaushaltungen demgemäss 4,67 Personen, also immerhin 0,14 Personen mehr als im Gesamtdurchschnitt. Die Familienhaushaltung dürfte daher gegenwärtig, unter Berücksichtigung der inzwischen eingetretenen Steigerung ihrer relativen Bedeutung, etwa 3,80 Personen umfassen.

So stark die oben erwähnte Zunahme der Zahl der Haushaltungen zwischen 1925 und 1933 auf den ersten Blick erscheint—tatsächlich blieb sie hinter den meisten amtlichen Schätzungen, die sich auf die bestehende Altersgliederung einer-, die "normalen" Heiratsziffern andererseits gründeten, noch erheblich zurück. So rechnete Band 407 der "Statistik des Deutschen Reichs"‡ für *Anfang* 1934 mit 18,2 Mill. Haushaltungen, d.h. 0,5 Mill. = 2,65% mehr, als für *Mitte* des Jahres tatsächlich ermittelt wurden.§ Gewiss: das Reichsamt konnte nicht alle Faktoren, die für die wirkliche Entwicklung von Bedeutung waren, im voraus richtig einschätzen—aber eben diese Unmöglichkeit sollte, und das gilt in erhöhtem Masse für *"Prophetien"* auf dem Gebiete der Geburten- und Sterblichkeitsverhältnisse, amtliche Stellen davor zurückhal-

* Beispiele: Im Freistaat Sachsen kommen 3,28, in Ostpreussen 4,19 Personen auf eine Haushaltung, in den Gemeinden mit unter 10.000 Einwohnern 4,08, in den Grosstädten 3,24 Personen.

† Für 1933 ist die Untergliederung, wie erwähnt, noch nicht veröffentlicht worden.

‡ Vgl. *Statistisches Jahrbuch f.d. Deutsche Reich*, 1933, S. 26.

§ Vgl. auch *Statistik des Deutschen Reichs*, Band 401, Teil II, und die bei KAHN, a.a.O. S. 151 angeführten Schätzungen, ferner *Wirtschaft und Statistik*, 1933, S. 522.

ten, so kühne "Vorausberechnungen"—noch dazu für *sehr lange Zeiträume**—aufzustellen, wie sie in den letzten Jahren mehrfach veröffentlicht wurden. Das Zurückbleiben der tatsächlichen hinter der geschätzten, "normalerweise" zu erwartenden Entwicklung erklärt sich vornehmlich aus der, unter den Wirkungen der schweren Wirtschaftskrise erfolgten *Senkung der Heiratsfreudigkeit*, die zur Folge hatte, dass 1930/32 die Zahl der Eheschliessungen nicht nur relativ, sondern sogar absolut abnahm,† obwohl an sich, nach der Besetzung der in Betracht kommenden Altersklassen, eine Steigerung zu erwarten gewesen wäre.‡ Inzwischen ist freilich, hauptsächlich dank den bevölkerungspolitischen Massnahmen der neuen Reichsregierung (Ehestandsdarlehen!§) eine derartige *Steigerung* der Heiratsfreudigkeit erfolgt, dass in der Zeit von Mitte 1933 bis Ende 1934 nahezu 0,2 Mill. Ehen *mehr* geschlossen wurden, als "normalerweise" zu erwarten stand. Infolgedessen hat sich der krisenbedingte "Fehlbetrag an Eheschliessungen" (ca. 0,3 Mill.) schon wieder um mehr als die Hälfte vermindert.‖

Zum ersten Male ist gelegentlich der Volkszählung von 1933 auch versucht worden, eine "richtige" *Familienstatistik* aufzustellen, wobei die Familie "als *biologische Einheit*"¶ erfasst werden sollte. Die bislang veröffentlichen (vorläufigen) Ergebnisse dieser neuartigen Statistik zeigen folgendes Bild:

Insgesamt gab es Mitte 1933 in Deutschen Reich (ohne Saar) reichlich 14 Mill. Familien zusammenlebender Ehepaare. Fast ein Fünftel (rd. 19%) aller dieser Ehen war kinderlos, weitere 43% hatten nur ein oder zwei Kinder, sodass also 62% aller Ehen *kinderlos oder kinderarm* waren. Ausgesprochen "*kinderreich*" (5 und mehr Kinder) waren nur 17% aller Ehen. Die Familien-

* Vgl. dazu u.a. R. von MISES in *Naturwissenschaften* XX, Berlin 1932, S. 59 ff. und 368 (Auseinandersetzung mit BURGDÖRFER).

† Allein 1932 wurden z.B. 80.000 = fast 14% weniger Ehen geschlossen, als 1929.

‡ Etwa 4/5 aller erstmalig heiratenden Männer und Frauen stehen im Alter von 20–30 Jahren. Die jetzt 20–30 Jährigen aber sind zwischen 1900 und 1912 geboren, d.h. sie gehören den stärkstbesetzten Geburtenjahrgängen an, die das Reich je aufzuweisen hatte und die (mit durschnittlich je rd. 2 Mill. Lebendgeborenen) doppelt so stark wie die letztjährigen waren.

§ Vgl. dazu "Die Ehestandsdarlehen und ihre bevölkerungspolitischen Auswirkungen," in *Wirtschaft u. Statistik*, 1935, S. 230/31. Darnach betrug u.a. die Zunahme der Eheschliessungen 1934 gegen 1932 rd. 0,23 Mill., die Zahl der 1934 ausgezahlten Ehestandsdarlehen rd. 0,22 Mill.

‖ Vgl. *Wirtschaft u. Statistik*, 1934, S. 330 ff., 692 und 766; 1935, S. 329.

¶ Ibid., 1935, S. 198.

statistik hat nun auch interessante Aufschlüsse über die Beziehungen zwischen ökonomisch-sozialer Stellung des Familienhauptes und Kinderreichtum vermittelt. Darnach ist z.B. der Prozentsatz der kinderlosen und -armen Ehen bei Familien von Bauern und Landwirten 44%, bei Industriearbeiterfamilien 67%, bei Angestelltenfamilien fast 80%, während umgekehrt in diesen 3 Gruppen der Prozentsatz der "kinderreichen" Ehen sich auf rd. 29%, 13% und 6% belief. Die Streuung ist also, wie man sieht, ausserordentlich gross. Im ganzen bietet die Statistik zwar nicht neue Erkenntnisse, wohl aber eine dankenswerte exakte Bestätigung älterer, nicht immer auf zulängliches Material gestützter Beobachtungen.

Abschliessend sei noch erwähnt, dass eine ergänzende Statistik versucht, über die Beziehungen zwischen Bodenbesitz und Kinderzahl Klarheit zu verbreiten. Es zeigt sich, dass bei Industrie- wie Landarbeiterfamilien Bodenbesitz mit einem gegenüber Bodenbesitzlosen sehr viel stärkeren Kinderreichtum Hand in Hand geht, und dass bei Bauern und Landwirten der Anteil "kinderreicher" Ehen zunächst mit wachsender Bodenfläche zunimmt, jedoch schon bei mittelbäuerlichen Betrieben sinkende Tendenz aufweist, die sich bei Grossbetrieben erheblich verschärft.

Alles in allem hat die neue Familienstatistik in einem—wichtigen —Punkte bereits interessante Ergebnisse geliefert, doch wird ein abschliessendes Urteil über ihren Erkenntniswert erst möglich sein, wenn weitere Daten veröffentlicht sind.

Berufliche Gliederung der Bevölkerung

Aus Raumgründen können die folgenden Ausführungen nur eine Skizzierung der grossen Linien geben. Dabei sind lediglich die Statistiken der Berufszählung herangezogen worden, während auf eine Auswertung der bisher publizierten Ergebnisse der landwirtschaftlichen und der gewerblichen *Betriebs*zählung verzichtet werden musste.

Allgemein ist bei Vergleichen zwischen 1925 und 1933 zu beachten, dass die Zählungen des letzten Jahres in eine Zeit fielen, in der die Wirtschaft sich noch in einem ausgesprochenen Depressionzustande befand, während 1925 das deutsche Wirtschaftsleben gerade einen Aufschwung erlebte. Tatsächlich zerfällt im übrigen die Zeitspanne zwischen 1925 und 1933 in zwei Abschnitte, insofern als bis 1928 der Wirtschaftskörper von einer

Ausdehnungs , seither von einer Schrumpfungstendenz beherrscht wurde -:zwei Tendenzen, von denen nur das *Endresultat* in den neuesten Zählungsergebnissen sichtbar wird.

1. Nichts ist charakteristischer für die Besonderheit der ökonomischen Situation, in der die neue Berufszählung erfolgte, als dass das Reichsamt sich erstmals veranlasst sah, die *Erwerbslosen* als gesonderte Gruppe nicht nur zu erheben, sondern auch nachzuweisen.* Wie notwendig das war, erhellt aus der Tatsache, dass Mitte 1933 nicht weniger als 5,9 Mill. Erwerbslose† (= 9% der Gesamtbevölkerung-ohne Saargebiet- und 18% aller "Erwerbspersonen" überhaupt) ermittelt wurden, gegen nur 0,64 Mill. (= 1% der Gesamtbevölkerung oder weniger als 2% der Erwerbspersonen) in 1925. Die Erwerbslosenzahl lag mithin 1933 um 5,22 Mill.—das ist das Doppelte des gesamten Bevölkerungszuwachses 1925/33 (2,8 Mill.)!—höher als 1925, während die Zahl der hauptberuflich Erwerbs*tätigen* gleichzeitig um fast 5 Mill. sich verringerte.

Weiter ist bemerkenswert, dass die Gesamtzahl der Erwerbs*personen* (1933 : 32,3 Mill.), die bisher ständig stärker wuchs als die Gesamtbevölkerung, sodass ihr Anteil an dieser stieg,‡ erstmals wesentlich weniger zugenommen hat, als die übrigen Bevölkerungsteile. Von dem Bevölkerungszuwachs entfielen nämlich nur 0,29 Mill. = 0,9% auf die Erwerbspersonen, deren Anteil an der Gesamtbevölkerung sich infolgedessen auf 49,5% senkte. Dagegen nahmen die "beruflosen Selbständigen" um rund 2 Mill. oder mehr als die Hälfte, die Ehefrauen ohne Hauptberuf um über 1 Mill. (12,4%) zu.

Eine nähere Betrachtung der *Arbeitslosenzahlen*§ zeigt, dass die Männer weit stärker als die Frauen von den Wirkungen der Krise betroffen wurden. Die Zahl der erwerbstätigen Männer nahm um

* *Erwerbstätige* und *Erwerbslose* werden unter dem Begriff *Erwerbspersonen* zusammengefasst. Die Erwerbslosen werden ebenso wie die Erwerbstätigen nach Wirtschaftszweigen, sozialer Stellung und Beruf gegliedert, und zwar "aufgrund des zuletzt von ihnen ausgeübten *Haupt*berufs und des Betriebes, in welchem sie zuletzt tätig waren" (*Wirtschaft und Statistik*, 1934, S. 434).

† Das waren 0,8 Mill. mehr, als bei den Reichsarbeitsämtern damals gemeldet waren (sogenannte "unsichtbare Arbeitslose").

‡ Die Erwerbstätigenquote betrug 1882: 42,4%; 1925: 51,3% der Gesamtbevölkerung.

§ Hier und im folgenden ist zu berücksichtigen, dass die Zahl der bei den Arbeitsämtern gemeldeten Erwerbslosen seit der Berufszählung von 1933 stark abgenommen hat. Sie sank im Sommer 1934 bis auf 2,3 Mill., um im Januar 1935 wieder, unter Saisoneinflüssen, auf rund 3 Mill. zu steigen.

rund 4 Mill. (20%), die der Frauen nur um rund 1 Mill. (9%) ab. Wenn die man bisher vorliegenden Angaben des Reichsamts zu ergänzen sucht, so ergibt sich, dass 1925 : 1,34% aller weiblichen und 2,31% aller männlichen Erwerbspersonen arbeitslos waren, 1933 aber 9,96% und 22,64%! Verhielten sich weibliche und männliche relative Arbeitslosigkeit 1925 wie 100 : 172, so 1933 wie 100 : 227. Diese Erscheinung dürfte hauptsächlich drei Gründe haben: (1) die Tatsache, dass der Anteil der der Wirtschaftsabteilung Land- und Forstwirtschaft zugehörenden weiblichen Erwerbspersonen mit 40,5% aller weiblichen Erwerbspersonen überhaupt den der Männer (22,6%) erheblich übersteigt und die relative Arbeitslosigkeit in der Landwirtschaft hinter der industriellen erheblich zurückblieb; (2) haben die billigeren weiblichen Löhne in der Industrie* eine geringere relative weibliche Arbeitslosigkeit zur Folge gehabt;† (3) schliesslich ist im Zuge der organisatorischen, einer Ausbreitung weiblicher Erwerbstätigkeit tendenziell günstigen Wandlungen der deutschen Volkswirtschaft die Zahl der in Handel und Verkehr erwerbs*tätigen* weiblichen Personen um 10,4% gegen 1925 gestiegen, während die der männlichen um 7% abnahm, und die Zahl der zu öffentlichen Diensten und privaten Dienstleistungen herangezogenen erwerbstätigen Frauen wuchs um 36,7% gegenüber einer Steigerung von nur 9,6% bei den Männern.

Ausser den Erwerbslosen stieg auch, wie schon erwähnt, die Zahl der *beruflosen Selbständigen* erheblich. Es sind das vor allem Rentenempfänger und Pensionäre, sowie Personen, die von eigenem Vermögen oder von Unterstützungen leben. Die jüngste Erhöhung dieser Gruppe, die dazu führte, dass ihr relatives Gewicht sich gegenüber 1882 fast verdreifacht hat,‡ stellt sich als Fortführung einer bereits vor dem Kriege ständig zu beobachtenden Entwicklungstendenz dar, nur dass diese sich in letzter Zeit noch verschärft hat. Dafür waren mehrere Gründe massgebend. Zunächst ein demographischer: die Tatsache nämlich, dass infolge der Besserung der Sterblichkeitsverhältnisse die höheren, für die Beruflosen besonders bedeutsamen Altersklassen eine steigende Besetzung aufweisen. Dazu kommt die moderne, sozialpolitisch,

* Von Bedeutung war auch, dass im Zuge der "Rationalisierung" eine Zurückdrängung der "qualifizierten"—überwiegend männlichen—Arbeitskräfte eintrat.

† Die Zahl der weiblichen Industrie-Arbeitslosen war 1933 nicht ganz 8 mal, die der Männer aber mehr als 11 mal so gross wie 1925.

‡ 1882: 3,1%, 1933: rund 9% der Gesamtbevölkerung.

neuerdings auch arbeitsmarktpolitisch motivierte Tendenz, die für Renten- oder Pensionsansprüche massgebende Altersgrenze herabzusetzen. Weiterhin aber versuchten 1925, unter den Nachwirkungen der gerade beendeten Inflation, viele Leute, die erlittenen Vermögensverluste durch Wiedereintritt in das Wirtschaftsleben teilweise auszugleichen, Versuche, die damals in Ansehung der Konjunkturlage auch weitgehend erfolgreich waren, 1933 aber wegen offenkundiger Aussichtslosigkeit wohl meist gar nicht erst unternommen wurden. Das Hauptkontingent des Zuwachses der Beruflosen aber stellten jedenfalls die *Sozialrentner*, deren Zahl insgesamt zwischen 1925 und 1933 um mehr als 1 1/2 Mill. anstieg, d.h. innerhalb von 8 Jahren sich 1 1/2 mal so stark erhöhte, wie in den 18 Jahren vor 1925.

Mit Recht macht das Stat. Reichsamt* darauf aufmerksam, "dass der Kreis der Erwerbspersonen eine *elastische Grösse* darstellt, die sich je nach den Bedürfnissen der Gesamtwirtschaft ändern kann," und dass die Nicht-Erwerbspersonen "gewissermassen ein *Staubecken für Arbeitskräfte* darstellen, das je nach Bedarf einen höheren oder niedrigeren Pegelstand aufweist." Diese Auffassung hebt sich erfreulich von früheren Aesserungen des Amtes und mancher deutscher Bevölkerungspolitiker ab, die nicht nur politische, sondern auch ökonomische Gefahren aus der prinzipiell richtig gesehenen, aber stark überschätzten sogen. "Schrumpfung des deutschen Volkskörpers" vorhersagten, ohne die grossen "Reserven" gebührend in Rücksicht zu ziehen, von denen das Reichsamt jetzt spricht.†

2. Neben den bisher behandelten hauptberuflich Erwerbstätigen sind auch 1933 wieder die "*nebenberuflich* Erwerbstätigen" besonders ermittelt worden. Ihre Zahl beträgt 3,4 Mill.; gegenüber 1925 (5 Mill.) ist eine Abnahme um 1,6 Mill. oder rund ein Drittel eingetreten, und zwar vornehmlich auf Kosten der *weiblichen* Arbeitskräfte, deren Anteil an der Gesamtzahl der nebenberuflich Erwerbstätigen von 32% auf 13% sank.‡ Nach wie vor werden die Nebenberufe (zumeist Bewirtschaftung einer kleinen Parzelle§) überwiegend—1925 in 70%, 1933 in 68% aller Fälle—gleichzeitig mit einem Hauptberuf ausgeübt.

* *Wirtschaft und Statistik*, 1934, S. 438.

† Diese "Reserven" sind erstmals von E. Kahn, a.a.O., S. 101 ff., besonders S. 109 ff., angenähert ihrer vollen Bedeutung gemäss gewürdigt worden.

‡ Vgl. *Wirtschaft und Statistik*, 1927, S. 922 ff., und 1934, S. 439.

§ Insges. sind rund 3/4 aller nebenberuflich Erwerbstätigen in der Landwirtschaft beschäftigt.

Ob der erhebliche Rückgang der Nebenberufstätigkeit tatsächlich, wie das Reichsamt meint, in erster Linie in der ungünstigen allgemeinen Wirtschaftslage begründet ist, erscheint nicht ganz sicher. Jedenfalls aber dürften daneben auch alle die anderen Faktoren mitgewirkt haben, von denen gelegentlich der vorletzten Berufszählung berichtet wurde* und von denen sicherlich die *"erhebungspsychologischen Gründe"* neuerdings eine gesteigerte Bedeutung gewonnen haben. Konkret: der schon vor einigen Jahren begonnene, aber erst durch die nationalsozialistische Regierung energisch durchgeführte Kampf gegen das sogen. *"Doppelverdienertum"* u. dgl. mehr wird in noch weit stärkerem Masse als früher die *Verheimlichung* von nebenberuflicher Erwerbstätigkeit, gerade auch seitens der Frauen, zur Folge gehabt haben, sodass die veröffentlichten Ziffern keine unbedingte Beweiskraft besitzen.

3. Eine nähere Betrachtung der *Gliederung* der Erwerbspersonen nach ihrer Zugehörigkeit zu den grossen *Wirtschaftsabteilungen* und- zweigen zeigt vor allem zwei auffällige Tatsachen: Einmal weist die Zahl der Erwerbs*personen* in Landwirtschaft *und* Industrie nicht nur einen relativen (von 30,5% auf 28,9%—Landwirtschaft—bzw. von 42,1% auf 40,4% aller Erwerbspersonen überhaupt—Industrie—) sondern zum ersten Male seit 50 Jahren auch einen *absoluten* Rückgang auf (je rund 0,4 Mill. = -0,4% bzw. 0,3%), und zum andern ist die *absolute* Zahl der hauptberuflich in der *Industrie Tätigen*—ebenfalls zum ersten Male seit 1882—unter die der *landwirtschaftlich Tätigen* gesunken.†

Natürlich ist die letzterwähnte Tatsache vornehmlich eine Folge der *Krisen*wirkungen, die dazu führten, dass 0,3 Mill. Erwerbslosen in der Landwirtschaft 4,2 Mill. Industrie-Arbeitslose gegenüberstanden. Die Zahl der der Industrie zugehörenden Erwerbs*personen* ist mit reichlich 13 Mill. immer noch um 40% höher als die der hauptberuflichen landwirtschaftlichen Erwerbspersonen (9,34 Mill.). Selbst wenn man einen gewissen Erfolg der neueren "Reagrarisierungsmassnahmen" für möglich hält, wird bei ansteigender Konjunktur doch die Industrie rasch wieder einen erheblichen Vorsprung vor der Landwirtschaft erringen.

Der erwähnte absolute und relative Rückgang der Erwerbs-

* *Wirtschaft und Statistik*, 1927, S. 926 f.

† Zahl der hauptberuflich Erwerbstätigen in der Industrie 1933 = 8,85 Mill. (4,21 Mill. oder fast 1/3 weniger als 1925), in der Landwirtschaft 9,03 Mill. (0,7 Mill. oder 7% weniger als 1925).

personen in Industrie und Landwirtschaft gegenüber 1925 dagegen ist "*strukturell*" bedingt, d.h. er ist ausser durch die Zunahme der beruflosen Selbständigen durch die Steigerung der Erwerbspersonen verursacht, die in Handel und Verkehr sowie öffentlichen Diensten und privaten Dienstleistungen gezählt sind.

Die Zahl der *Erwerbspersonen* in *Handel und Verkehr* ist, wie schon angedeutet, trotz der Krise gegenüber 1925 um 0,7 Mill. oder 13% auf fast 6 Mill. *gestiegen*, und zwar hauptsächlich infolge der Zunahme der *weiblichen* Arbeitskräfte. Damit setzt sich eine bereits seit den 80er Jahren zu beobachtende Entwicklung fort*). Deren Gründe sind bekannt: Aenderung der Siedlungsweise (insbes. zunehmende Grosstadtsiedlung), Differenzierung von Produktion und Absatz†, ferner speziell beim Handel geringere Möglichkeit der Ersetzung menschlicher durch maschinelle Arbeitskraft‡ sowie geringerer Kapitalbedarf als für Industriebetriebe usw. Speziell der letzte Faktor ist in Krisenzeiten von besonderer Bedeutung (Betätigung von erwerbslos Gewordenen—als Selbständige—in Einzelhandelsbetrieben kleinsten Formats).

Wie schon erwähnt, hat auch die Wirtschaftsabteilung "*öffentlicher Dienst und private Dienstleistungen*" absolut und relativ an Bedeutung gewonnen. Die Zahl der ihr angehörenden *Erwerbspersonen* betrug 1933: 2,7 Mill., d.h. 0,6 Mill. oder 27% *mehr* als 1925. Infolge unterdurchschnittlicher Arbeitslosigkeit—eine Erscheinung, die sich vor allem aus der relativ geringfügigen Verringerung des Personalbestandes der öffentlichen Verwaltungen erklären dürfte -war der Anteil der in dieser Wirtschaftsabteilung *Tätigen* an der Gesamtzahl aller Erwerbstätigen mit 9,3% (1925:

* Auf die Gruppe "Handel und Verkehr" entfielen 1882: 8,6%, 1907: 13,9%, 1925: 16,4% und 1933: 18,4% aller Erwerbspersonen.

† Ueberwiegend handelt es sich um Faktoren, die eng mit der zunehmenden *Industrialisierung* zusammenhängen. So erklärt es sich auch, dass international eine *Korrelation* zwischen der relativen Bedeutung von *Industrie* und *Handel* in bezug auf die in diesen Wirtschaftsabteilungen Tätigen besteht, also z.B. ausgesprochene Industrieländer wie Grossbritannien, Belgien und die Schweiz einen relativ sehr hohen Anteil der in Handel und Verkehr Beschäftigten aufweisen (17–25% der Erwerbstätigen), während dieser Anteil in Agrarstaaten (Südosteuropaländer, Baltische Randstaaten) gering ist (unter 10%).

‡ Nennleistung der zum Antrieb von Arbeitsmaschinen verwendeten Kraftmaschinen 1933 in Handel und Verkehr 1,5 Mill., in der Industrie 23,3 Mill. PS. (*Wirtschaft u. Statistik*, 1934, S. 198).

6,7%) höher als der entsprechende Anteilssatz für die *Erwerbspersonen* überhaupt (8,4%; 1925: 6,7%).*

Was schliesslich die—fast ausschliesslich von *weiblichen* Kräften besetzte—Wirtschaftsabteilung *"Häusliche Dienste"* betrifft, so hat die Zahl der ihr zugehörenden *Erwerbspersonen* um 0,12 Mill. oder 9%, die der *Erwerbstätigen* um 0,29 Mill. oder 21% gegenüber 1925 *abgenommen*, und zwar offensichtlich ganz überwiegend infolge krisenbedingter Entlassungen weiblicher Hausangestellter; insges. gehörten dieser Wirtschaftsabteilung 1,27 Mill. (3,9% aller) Erwerbspersonen und 1,09 Mill. (4,1% aller) Erwerbstätige an.—

4. Einen Ueberblick über die ökonomische Gliederung der *Gesamtbevölkerung* gewinnt man, wenn man zu den Erwerbspersonen bzw. den beruflosen Selbständigen jeweils deren Angehörige (ohne Hauptberuf) hinzurechnet.

Es zeigt sich dann, dass *1933* auf die *"Berufszugehörigen"* der Industrie (einschl. Handwerk) 38,8%, auf die von Land- und Forstwirtschaft 21%, die von Handel und Verkehr 16,9%, auf beruflose Selbständige 13,5%, auf die Berufszugehörigen der Abteilung Oeffentlicher Dienst und private Dienstleistungen 7,8% und schliesslich die der häuslichen Dienste 2% der Gesamtbevölkerung entfielen. Gegenüber 1925 haben die Beruflosen einschl. ihrer Angehörigen um 55,5%, die Berufszugehörigen des Oeffentlichen Dienstes pp. um 21,2%, die von Handel und Verkehr um 5,1% zugenommen, die aller übrigen Wirtschaftsabteilungen haben mehr oder minder stark an Bedeutung verloren.

Soziale Gliederung der Bevölkerung

Die neue deutsche Berufszählung unterscheidet nach der Stellung der Erwerbspersonen im Beruf oder Betrieb folgende 6 Hauptgruppen: (1) Selbständige (Eigentümer und Pächter, aber auch Angestellte—z.B. Fabrikdirektoren—sowie Offiziere und Beamte "in leitender Stellung"); (2) mithelfende Familienangehörige; (3) Beamte und Soldaten, (4) (nicht-leitende) Angestellte (erstmalig von den Beamten gesondert, untergegliedert in a. Fachpersonal und technische Angestellte, b. kaufmännische und Büroangestellte); (5) Arbeiter (darunter auch die 1925 zu den "Selbständigen" gezählten Heimarbeiter und Hausgewerbetreibenden); (6) Hausangestellte.

* Öffentliche Dienste pp. haben als einzige Wirtschaftsabteilung gegenüber 1925 eine Zunahme der Gesamtzahl Erwerbstätiger aufzuweisen (vgl. oben).

1. Auf die Gruppe der *Selbständigen* und die der *mithelfenden Familienangehörigen* entfielen 1933 je 16,4% der Erwerbspersonen. Von ersteren sind 18%, von letzteren aber 78% *Frauen*. Ganz überwiegend sind die "Mithelfenden" in der Landwirtschaft tätig. Bedient man sich des gerade für ländliche (bäuerliche) Verhältnisse anwendbaren Begriffs der "*Familienselbständigkeit*," so zeigt sich, dass diese für 1/3 aller Erwerbspersonen besteht. Im Vergleich zu 1925 sind nur geringfügige Verschiebungen eingetreten: eine kleine relative Zunahme (4,3%) der "Selbständigen"* steht einer ungefähr gleichgrossen relativen Abnahme (2,3%) der "Mithelfenden"† gegenüber.

Beamte und Soldaten (in nicht-leitender Stellung!) bilden zusammen 4,6% der Erwerbspersonen, *Angestellte* (ebenfalls "nicht-leitende") 12,5%. Insgesamt entfiel auf Beamte und Angestellte daher ungefähr derselbe Prozensatz wie 1925 (17%), wo, wie erwähnt, diese beiden Gruppen nur in *einer* Zahl ausgewiesen wurden. Absolut haben die Beamten etwa um 0,1 Mill. ab-, die Angestellten um 0,2–0,3 Mill. Erwerbspersonen zugenommen. Rund 9% der Beamten und 39% der Angestellten sind *weiblichen* Geschlechts. Von den männlichen Angestellten sind fast 2/3, von den weiblichen fast 3/4 kaufmännische und Büroangestellte.

Auf "*Arbeiter*" entfielen 1933: 46,3% (1925: 46%) aller Erwerbspersonen. Wie schon in anderem Zusammenhange angedeutet, ist das Wachstum der Industrie fast vollständig zum Stillstand gekommen; die männliche Industriearbeiterschaft nahm noch um 7% zu, die weibliche aber um 5,6% ab.

Was schliesslich die (zu 99% weiblichen) *Hausangestellten* anlangt, so sank ihr Anteil an der Gesamtheit der Erwerbspersonen von 4,1% in 1925 auf 3,8% in 1933. Der absolute Rückgang belief sich auf 0,1 Mill. = 8,1%.

2. Die bisher angeführten Ziffern bezogen sich auf *Erwerbspersonen*. Scheidet man nach *Erwerbstätigen* und *Erwerbslosen*, so ergibt sich folgendes:

Da die Arbeitslosigkeit begreiflicherweise bei den Selbständigen und mithelfenden Familienangehörigen nur eine relativ bescheidene Rolle spielt, ist der Anteil dieser Gruppen innerhalb der

* Diese Entwicklung erklärt sich vor allem aus der starken Zunahme der "Selbständigen" im Handelsgewerbe.

† Dieser Rückgang ging ausschliesslich zu Lasten der Männer, vor allem der in der Landwirtschaft tätigen.

Zahl der *Erwerbstätigen* mit je rund 20% wesentlich höher, als innerhalb der *Erwerbspersonen*. Dasselbe gilt für die Beamten (5,6%), aber auch die Hausangestellten (4%), während umgekehrt bei den Angestellten (12%) und vor allem den Arbeitern* (38,3%!) der Anteil an den Erwerbstätigen *niedriger* als der an den Erwerbspersonen war.

3. Die soziale Gliederung der *Gesamtbevölkerung* weist folgendes Bild auf:

1933 bildeten die "Selbständigen" (hier und für die folgenden sozialen Gruppen immer einschl. der Angehörigen ohne Hauptberuf = "Berufszugehörige") 17,6%, die mithelfenden Familienangehörigen 8,4%, Beamte und Soldaten (in nicht-leitender Stellung) 5,6%, Angestellte (in nicht-leitender Stellung) 10%, Arbeiter 43%, Hausangestellte 1,9% und beruflose Selbständige 13,5% der Gesamtbevölkerung. Gegenüber 1925 ist, abgesehen von der bereits erwähnten erheblichen Steigerung der beruflosen Selbständigen, eine weitere Zunahme der Arbeiter um 4% festzustellen, während alle übrigen sozialen Gruppen an relativem Gewicht einbüssten. Angesichts der sehr problematischen wirtschaftlich-sozialen Qualität der beruflosen Selbständigen, unter denen die "echten" (*kapitalistisch* "unabhängigen") Rentner eine nur sehr bescheidene Rolle spielen, ist diese Entwicklung, die eine weitere Zurückdrängung der Selbständigen und der höheren Schichten der Unselbständigen (Beamte und Angestellte) zum Ausdruck bringt, sozial durchaus negativ zu beurteilen.

Die Natuerliche Bevölkerungsbewegung in Deutschland 1933/1934

Der Geburtenrückgang hat in Deutschland zwar schon um die Jahrhundertwende eingesetzt, aber erst seit etwa 1922 jenes rapide Tempo eingeschlagen, das die lebhafte Beunruhigung der Regierungen und Bevölkerungspolitiker erregte, und mit dem die Besserung der Sterblichkeitsverhältnisse je länger je weniger Schritt zu halten vermochte. Das Ergebnis war eine scharfe Verringerung der Geburten*überschüsse*, die im ersten Jahrzehnt unseres Jahrhunderts etwa 0,9 Mill. je Jahr betrugen, in den 20er

* Die Zahl der erwerbslosen Arbeiter machte 1933 mit 4,8 Mill. das Zehnfache derjenigen von 1925 (0,45 Mill.) aus; 36% aller männlichen, aber nur 20% aller weiblichen Arbeiter waren 1933 erwerbslos. (Bei Angestellten: 24% und 19%).

Jahren auf etwa die Hälfte sanken, um 1933 mit 1/4 Million einen Rekordtiefstand zu erreichen.

Aber schon Mitte 1933 begann sich eine neue Entwicklungstendenz abzuzeichnen, die dann 1934 verstärkt in Erscheinung trat. Die *äusseren* Gründe dafür sind bekannt: sie sind vor allem in der betont "populationistischen" Einstellung der neuen Regierung zu suchen. Diese Einstellung fand in zahlreichen Massnahmen ihren Niederschlag, die durch materielle Begünstigung der Eheschliessungen, des Kinderreichtums usw. die Geburtenziffern direkt und indirekt zu erhöhen bestimmt sind.

Die augenfälligsten Erfolge dieser Politik zeigten sich in der *Heiratsstatistik*, von deren jüngster Entwicklung bereits die Rede war. Schon im Jahre 1933 war die "rohe" Heiratsziffer mit 9,7‰ höher, als sie seit dem Abebben der "Heiratskonjunktur" der ersten Nachkriegsjahre je gewesen war, und in den ersten drei Vierteljahren 1934 lag sie mit 10,5‰ weiter erheblich über dem (bereits erhöhten) Vorjahrsniveau (8,4‰).*

Was die *Geburten* anlangt, so setzte, sich ihr Rückgang im ersten Halbjahr 1933 zunächst noch fort, um dann einer Stagnation Platz zu machen. Im Endergebnis erreichte die (rohe) Geburtenziffer mit 14,7‰ ein Minimum, das nur etwa die Hälfte der Ziffer der letzten Vorkriegsjahre (ca. 28‰) ausmachte, die ihrerseits schon erheblich niedriger als die Ziffern um die Jahrhundertwende (ca. 36‰) war. 1934 aber zeigte sich eine starke Vermehrung der Geburten, die die (rohe) Geburtenziffer auf 18‰ (gegen 1933 = + 22%) steigen liess. Dabei war bemerkenswerterweise die Steigerung der Geburtenzahl in den Grosstädten relativ am grössten.† Insgesamt wurden im Reich 1934: 1,12 Mill. Kinder lebend geboren, das waren rd. 1/4 Mill. mehr als 1933. Mit Recht aber weist das Statistische Reichsamt‡ darauf hin, "dass dieser z.Zt. ausserordentlich rasche Anstieg der Geburtenzahl hauptsächlich auf einer Anhäufung von *Erstgeburten* in den zahlreichen jungen, mit Ehestandsdarlehen geschlossenen Ehen aus dem Jahre 1933 beruht," dass hingegen von einer "tatsächlichen Wieder-

* Wenngleich die (rohe) Heiratsziffer im ganzen Jahr 1934 noch mit 11,2‰ erheblich die des Vorjahrs überstieg, so zeigte sich doch im 4. Vierteljahr 1934 erstmals eine gewisse Abflauungstendenz, die anscheinend anhält. So betrug die grosstädtische Heiratsziffer für die ersten 6 Monate 1935 nur 10,7‰ gegen 11,5‰ im entsprechenden Vorjahrzeitraum.

† Die Geburtenzahl der deutschen Grosstädte war 1934 um rd. 72.000 Lebendgeborene oder ein Drittel höher als 1933.

‡ *Wirtschaft und Statistik*, 1934, S. 767; vgl. auch 1935, S. 331.

belebung der Forpflanzungshäufigkeit . . . erst dann die Rede sein (kann), wenn eine entsprechende Zunahme der Zweit-, Dritt- und folgenden Geburten auch in den bereits vor 1933 geschlossenen Ehen nachgewiesen werden kann."

Hervorzuheben ist, dass die *Sterblichkeitsverhältnisse* weiter günstig blieben, ja die *Säuglingssterblichkeit* 1934 mit 6,6% noch erheblich unter die des Vorjahrs (7,6%) sank. Der *Geburtenüberschuss* betrug 1934 0,46 Mill., d.h. mehr als doppelt so viel wie 1933 (7,1‰ : 3,5‰).

Abschliessend ist zu sagen, dass die neue Regierung ohne Zweifel auf gewisse Erfolge ihrer bevölkerungspolitischen Massnahmen hinweisen kann. Ob diese aber *dauerhafter* Natur sind und dem Geburtenrückgang nebst seinen drohenden Folgeerscheinungen (Stagnation oder absolute Verringerung der deutschen Volkszahl, "Vergreisung" usw.) *endgültig* Einhalt geboten ist— das vermag vorläufig noch nicht entschieden zu werden. Das Statistische Reichsamt selbst warnt, wie erwähnt, implicite vor einer zu optimistischen Beurteilung des bisher Erreichten. Zu einem solchen Skeptizismus wird sich namentlich der veranlasst sehen, der die letzten Ursachen des Geburtenrückgangs in *geistig-seelischen* Momenten, vor allem: der Ausbreitung materialistischer, kapitalistisch-rechenhafter Gesinnung sucht. Denn es steht zu erwarten, dass die geldliche "Prämiierung" von Eheschliessung und Kinderzeugung, die eine solche Gesinnung im Grunde anerkennt, ja: *fördert*, nur vorübergehende Erfolge zu zeitigen vermag. Nach allem erscheint es angebracht, in der überaus starken und raschen Steigerung der Heirats- und Geburtenzahlen *zunächst* überwiegend nur Nachholungen bezw. Antizipationen zu sehen

POPULATION BIOLOGY IN BENGAL

By CEDRIC DOVER

THE population problem in Bengal has been the subject of considerable controversy. One school* maintains that the solution lies essentially in raising the standard of living, Colonel Stewart believing that if we "look after the death-rates, the birth-rates will look after themselves." Its opponents feel, as the Editor of *The Indian Medical Gazette* pointed out in 1932, that if we "keep down the births, the deaths will keep down themselves." It would be interesting, therefore, to study these claims from the biological viewpoint.

The magnitude of the problem is obviously an important preliminary consideration. It can be appreciated from the fact that the population of Bengal, 50·1 millions with a mean density of 646 per square mile, is the largest in India. In some villages in the fertile plains the pressure per square mile varies between 1,500 and 2,900,† these figures being comparably exceeded only in a few irrigated districts in China, where the record stands as high as 6,880 per square mile.‡ The optimum density is estimated at 68–74 millions, attainable in the second half of the next century, so that the present population has already reached about 70 per cent. of the saturation-point. And if we make a distinction, too frequently overlooked, between the biological and the eugenic or economic optimum, it would seem that the population has already passed the stage where its physiological and social needs can be met by the area it occupies.

In India generally, the minimum nutritional needs of 66 per cent. of the population are barely covered, the mean area available for food production being 1·2 acres per unit of population,§ against 2·6 and 2·3 in America and France respectively. And in an economic regime which spends only 0·13 of the national income on social services (health, agriculture, and education) and permits the wastage of 69 per cent. of the productive factors of land, labour, and capital,‖ Clarke's belief that adequate soil im-

* See, e.g. A. D. Stewart: *Ind. Med. Gaz.*, LXVII, pp. 163–164, 1932. And A. E. Porter: Appendix to chap. 1 of *Census of India*, 1931, I. i, 1933, by J. H. Hutton.

† R. Mukerjee: *Ind. Journ. Econ.*, IX, pp. 144–152, 1928.

‡ W. H. Mallory: *China, Land of Famine*. Amer. Geog. Soc., 1926.

§ G. Clarke: *Proc. Seventeenth Ind. Sci. Congress*, pp. 23–34, 1930.

‖ R. K. Das: *The Industrial Efficiency of India*, P. S. King & Son, London, 1930.

provement would increase the present yield by 30 per cent. within three decades is unlikely to be translated into action. At a liberal estimate, the problem of social development in India is accordingly attended by unusual difficulties with a population exceeding 270 millions, even if it is supported by radical changes in the administrative background. The unmanageable proportions of the present population of 352 millions, with an annual *per capita* income of at

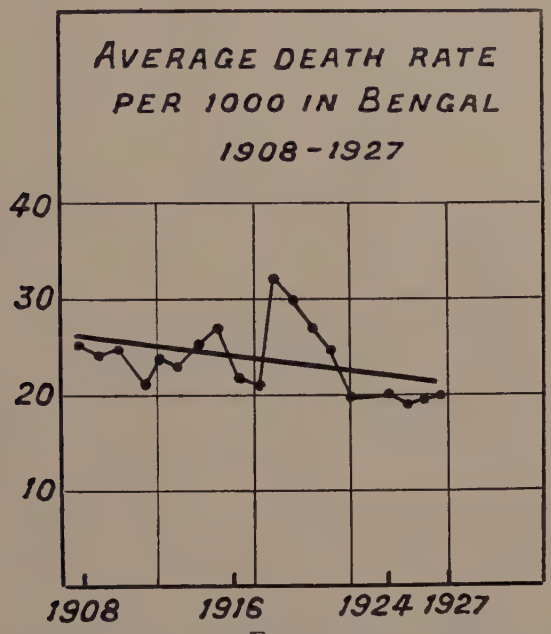


FIG. 1.

The average birth, death, infant mortality, and growth-rates of the population of Bengal, 1907–1908 to 1927. The straight lines show the trends, calculated by the method of least squares. (A summation by C. Dover of diagrams by Dr. C. A. Bentley.)

most Rs.150, is therefore the most pressing economic argument for population control.

Proceeding to biological considerations, it is well known that in overpopulated areas not only do famines and epidemics contribute spectacular readjustments to resources, but there is a progressive decline in the rate of population growth as the point of optimum density is approached. In Bengal, a marked decline in relative growth-rate is already conspicuous, the rate of increase (+ 7·3) during the last decade being lower than the mean for India (+ 10·6) and among the lowest in the country. This decline

is more emphatically illustrated by a series of graphs of birth- and death-rates in twenty-seven districts in Bengal, kindly provided by Dr. C. A. Bentley, to whom belongs the rather neglected distinction of pioneering emphasis on the biological nature of the falling birth-rate (32 per cent. between 1899 and 1929) in the Province.* As Dr. Bentley's diagrams were not published with his note, I have consolidated them in the accompanying figures (1–4), the

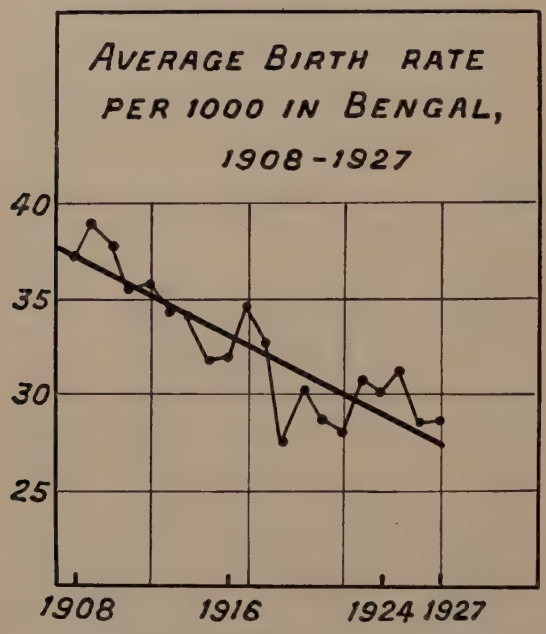


FIG. 2.

(See explanation under Fig. 1.)

difference between birth- and death-rates being also plotted. The nature of the trends suggests that the slight downward tendency of the infant mortality and general death-rates is essentially a function of the marked decline in the birth-rate, rather than a response to improved conditions. In fact, the welfare movement is weaker in Bengal than in most Provinces (a map of the distribution of the Red Cross Society's branches, for example, shows the least number in Bengal), and it follows Madras in having the worst Provincial diet in the country.† The dominating influence of birth-

* *Proc. Eighteenth Ind. Sci. Congress*, p. 347, 1931.

† R. McCarrison: *Trans. Seventh Congress, Far Eastern Assoc. Trop. Med.*, III, pp. 322–323, 1927.

rates on mortality is further supported by the fact that greater resistance to disease is correlated with a low birth-rate, Dr. J. H. L. Cumpston* finding, for example, that the death-rate on account of measles in Australia rises with the elevation of the birth-rate. With a birth-rate below 30 per mille mortality is stabilized at a low level.

The relation between physiological conditions and population

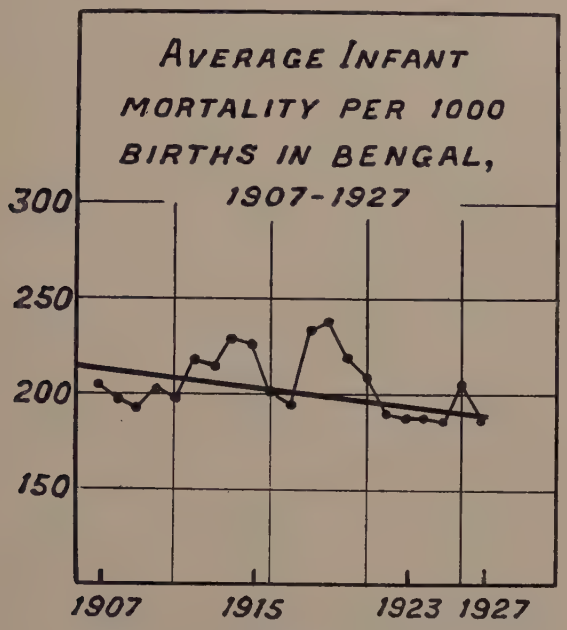


FIG. 3.

(See explanation under Fig. 1.)

growth provides an interesting example of the complex of factors concerned in the maintenance of biological equilibrium. Physiological factors disturb the equal ratio of male and female births, which should result from the mechanism of chromosome distribution, "male-producer" sperms being regarded as more vigorous but less resistant to unfavourable conditions than the "female-producers." This hypothesis explains the increasing preponderance of male over female births in response to favourable conditions, and the surplusage of females in dense populations where social standards are naturally low. The controlling influence of an unequal sex-ratio on population growth depends on the observa-

* *Journ. Hygiene*, XXI, pp. 291–308, 1931.

tion that a progressive surplusage of females elevates, while a growing excess of males depresses, the growth curve.* The tendency of improved conditions to stimulate the growth-rate is accordingly curbed by the resulting excess of males, which may eventually reach a stage when it results in population decline. Conversely, the progressive decline in the growth-rate of dense and depressed populations is compensated by the associated surplusage

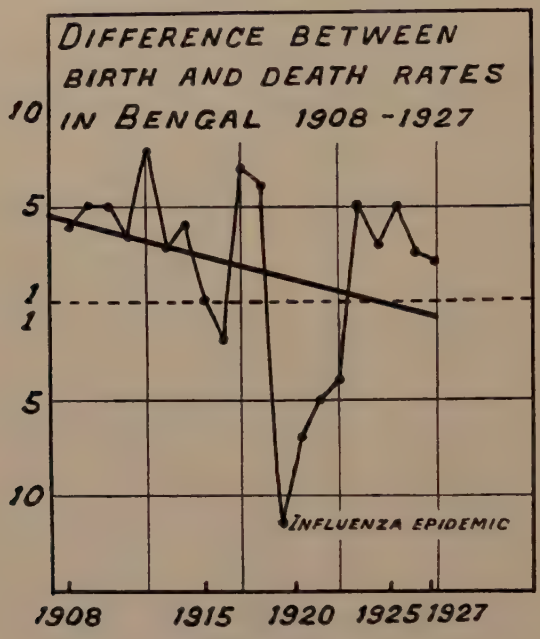


FIG. 4.

(See explanation under Fig. 1.)

of females. The balanced action of these factors, therefore, not only contributes to the maintenance of favourable conditions, undisturbed by disproportionate changes in population pressure, but also ensures the gradual realization of the biological optimum.

These natural provisions for the continuation of biological equilibrium are well illustrated in the populations of Bengal and Madras, where the physiological factors of nutrition and climate compare very unfavourably with those obtaining, for example, in the Punjab and North-West Frontier Province. The accompany-

* G. H. L. F. Pitt-Rivers: *Proc. Pan-Pacific Sci. Congress*, 1, 1923; *Proc. Third Sex-Reform Congress*, 1930; *The Clash of Culture and the Contact of Races*. Routledge, London, 1927.

ing diagram (5) shows the close correlation between dietetic efficiency, as determined by McCarrison's experiments on growth in weight in rats, and the sex-ratio in these four Provinces. It will be seen that the preponderance of male births is conspicuously lower in Bengal and Madras, which results, in combination with a relatively higher incidence of male mortality, in a secondary sex-ratio characterized by an insignificant excess of males over females.

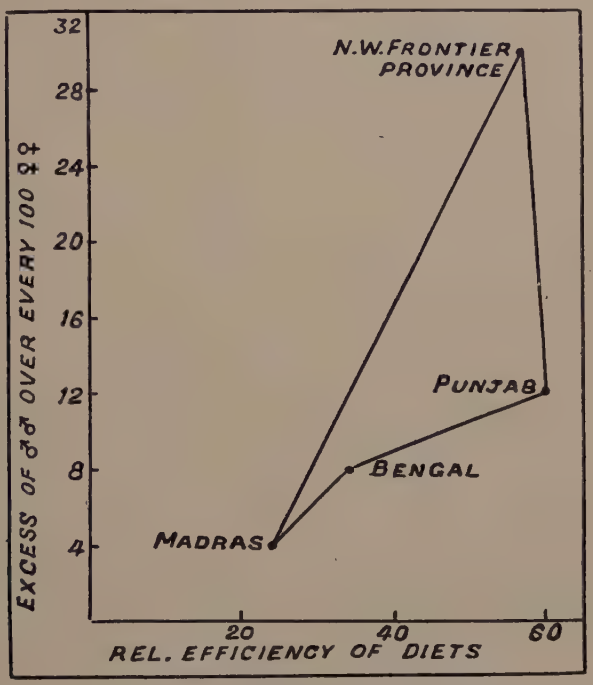


FIG. 5.

Relation between excess of male births and dietetic efficiency.

In Bengal the sex-ratio for the total population is 924 females to 1,000 males, the proportion rising in the reproductive age-groups to 1,037 females for every 1,000 males. In Madras, there is a higher incidence of females in both categories.

It appears to follow from these observations that control of the birth-rates is likely to furnish a more useful contribution to the population problem than exclusive attention to the death-rates. Indeed, in Japan, as Sir John Megaw has pointed out, improved sanitation has "failed to secure any appreciable reduction in the death-rate. The infant mortality-rate has actually risen and the expectation of life has fallen." Moreover, both birth and death-

rates have shown a correlated upward trend during the last fifty years, the growth-rate remaining progressive.* On the other hand, it is evident that the improvement of social conditions must not only be regarded as the primary duty of responsible government, but also as an influencing factor in the stabilization of population growth at a low level. The task of social hygiene in India will, however, be greatly facilitated by radical measures for population control.†

Finally, those who are sceptical of the efficacy and feasibility of preventive measures will somewhat naturally query their necessity in a population with a markedly declining birth-rate. It should therefore be emphasized that, apart from the immediate economic argument, this decline represents a biological phenomenon involving a complex of factors by which the realization of optimum density will nevertheless be slowly but surely secured. And it seems that a maximal population cannot be maintained above the bare subsistence level, even with radical progress in economic prosperity. In fact, the population of Bengal, as of India generally, has already outgrown its resources, and the task of equating supply and demand within a reasonable period must appear impossible to the stoutest optimist. Obviously, the time has come when we must interfere with the natural plan and deflect biological trends to suit social needs, distasteful though the process may seem to many. And conservatism and placation of illiberal sentiment must not be allowed to exclude eugenic control of population growth from the public health programme.

* W. H. Crocker: *The Japanese Population Problem.* Allen & Unwin, London, 1931. B. K. Sarker: *Journ. Ind. Med. Assoc.*, I, pp. 379–414, 1932.
† C. Dover: *Eugenics Review*, January 1935; and *Quarterly Review*, January 1935.

THE OCCUPATIONAL EVOLUTION OF A GENERATION

By Professor P. LUZZATTO-FEGIZ

(*Direttore dell'Istituto Economico-Statistico della R. Università di Trieste*)

To make a career or improve his position is considered a normal happening in man's life, whatever his occupation. But to answer the question: "How many out of 100 men aged 20 do actually rise to a higher social position?" is not an easy task, first of all because the question is too vaguely expressed. We shall therefore try to frame the problem more clearly before we look for an approximate answer resting on statistical data.

Suppose there are in an occupation several social classes or "steps" (1, 2, . . . k); what is the probability for a man of Class 1, aged x, to rise to Class 2 or 3 . . . or k before age $x + 1$? This question could be answered by actuarial methods, if the number of men aged x, $x + 1$, and of Class 1, who actually rise to Class 2, 3 . . . etc., in the unit of time (say a year) be known, and if we knew also the number of those exposed to risk. Taking into account the mortality also, tables of survivors at each age for the several occupational classes could be calculated. As a matter of fact, such a calculation could perhaps be carried on for the personnel of a single factory, or for the Army; but it would be practically impossible to do such a work for a larger aggregate—say a province or State—owing to the tremendous task of recording in a register all the changes of profession and of position which occur in the life of almost every individual.

Yet we may have an idea of this process of social rise and fall if, admitting stationary conditions (viz. constant rates of mortality and of "migration" between occupational classes), we classify the male population by age and occupation, and calculate the percentage of those belonging to Class 1, 2, etc., at each age. Suppose, e.g., that there are three classes, and that at age twenty 70 per cent. of the males belong to Class 1, 10 per cent. to Class 2, and 20 per cent. to Class 3. If the mortality were the same in all classes throughout life, and there were no tendency of those belonging to one class to shift to another as they became older, we should find the same percentages at all ages—viz. 70 per cent., 10 per cent., and 20 per cent. This would be represented by three straight lines of different height, parallel to the x-axis. But when we actually find that the lines have, in a given age-interval, an upward or downward trend, then we must conclude that during

this interval there has been at work either differential mortality or a shift between different occupations, or both. Suppose, e.g., that the percentage of Class 1 is constantly decreasing with age: then we must conclude that members of the lowest class are dying out more quickly than the others, or that they gradually rise to Classes 2 and 3, or that both facts are combined.

Such a table or graph would represent, *if considered statically*, the "social" structure of the population at census; *if considered dynamically*, the "social evolution" of a generation. But it must be repeated emphatically that all this is true only in a population which is perfectly stationary both in its age-composition and occupational structure.

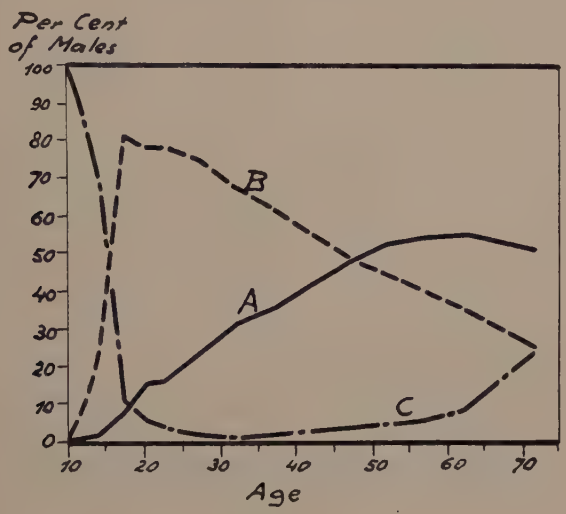
The first step towards the establishment of such a table is the choice of an appropriate method of occupational classification. The methods usually employed in censuses are the "*industrial*," resting on a classification of the goods and services produced by the concern to which the individual belongs as owner, manager, employee, worker, etc.; the "*occupational*," based on the technical characteristics of the work made by the individual, without regard to the branch to which he belongs and often without specification of status; and the "*social*," based on the economic-social position held by the individual. As a matter of fact, official statistics generally adopt a mixed system. The Census of England and Wales, 1921, has adopted an industrial-occupational system, which allows, however, in many instances, for a social discrimination. (Superintending staff, skilled, unskilled, etc.)

The last Italian Census (1931) has adopted a classification combining the three methods indicated above.

The social classification is the following: (*a*) owners, managers; (*b*) employees, clerks; (*c*) artisans not employing salaried workers (including home-workers); (*d*) artisans employing salaried workers; (*e*) workers.

Unfortunately, this scheme is applied only to Manufacture, Credit and Commerce, Transport and Communication, but not to Agriculture, to the professions, etc. So I had recourse to a new classification, based chiefly on the economic characteristics of the work done by the individual. All those who bear the risk of production as owners, managers, artisans, and professional men were included in Class A; all working for salary (with the exception of managers), and all relatives assisting in the work, in Class B. The retired and never occupied were grouped in Class C.

The mere capitalists were aggregated to Class A, firstly because it is often difficult to decide whether a man is a mere capitalist, an owner-manager, or a mixture of both; and then owing to the paucity of those who reported themselves as mere capitalists (*proprietari e benestanti*). There were, of course, several dubious cases; but without going into details I venture to say that the shift which would result from a different classification of those dubious cases would not affect materially the final percentages.



GRAPH 1.—SOCIAL GROUPS AT AGES: ITALY, 1931

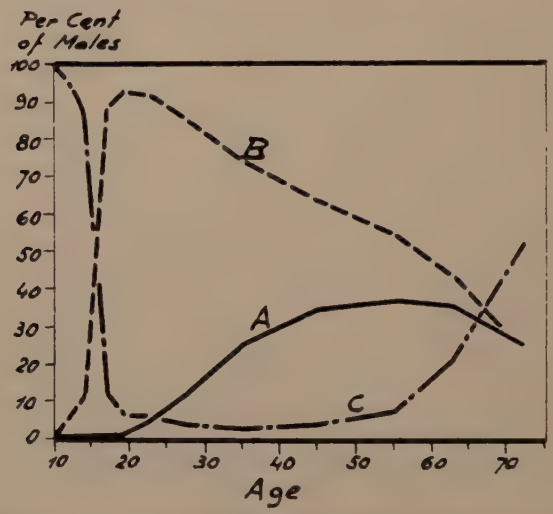
A = Employers and Capitalists; B = Salaried; C = Not active.

The temporary rise of Curve A at age 20–21 is due probably to misstatement of their former occupation by non-professional soldiers (military service is compulsory in Italy at age 21).

The classification is comparatively easy for Germany, where the gainfully occupied (*hauptberuflich Erwerbstätige*) are grouped in the following four social classes: (*a*) Independent (*Selbstständige*—including managers, directors, and leading officials); (*b*) Employees and clerks (*Angestellte und Beamte*); (*c*) Workers (*Arbeiter*); (*d*) Relatives assisting in the work (*mithelfende Familienangehörige*). To those classes we must add the "Independent without occupation" (*Beruflose Selbstständige*) and the relatives of the independent; both were aggregated to Class C, although the *beruflose Selbstständige* include also rentiers and people living on their own means.

We may proceed now to a short analysis and comment on our curves (see Graphs 1 to 5).

The populations analysed were *Italy* (1911 and 1931), *Germany*, (1925) and eighteen Italian provinces (1931). Of those provinces several were purely rural, others rural but including a large urban population, and others urban with a small rural population, so that remarkable differences in occupational structure could be expected. In fact, there are differences, but the general shape of the curves is almost the same in all populations.



GRAPH 2.—SOCIAL GROUPS AT AGES: GERMANY, 1925
A, B, and C as in Graph 1.

Curve C (retired and never occupied) is always U-shaped—and it could not be otherwise, since *all* newly-born children, and most people of extreme age, *must* belong to Class C.

Small differences in the shape of the curves are due probably to differences in nomenclature. To explain the low percentage of those retired and never occupied between ages 20 and 50, we must remember that the unemployed were classified in their last occupation; moreover, we suggest that many retired or idle people in that age-interval reported their former occupation or an honorary one as their true occupation.

Since we can admit that Curve C is practically identical in all countries, and A and B are therefore interdependent, we could confine ourselves to the study of one curve only: A or B.

As a rule, A is growing in almost arithmetical progression up to

about age 55, when the rate of increase slows down, becoming negative before age 60.*

Curve B, which in the earlier ages is almost complementary to Curve C (because the children who leave school do not become at once independent, but get as a rule salaried posts), rises very quickly, reaching its maximum between ages 20 and 25; then it decreases steadily.

Confining ourselves to Curve A, we may ask now: Why is it increasing with age? Why is the increase so remarkably regular up to age 55? Why does the rate of increase slow down after age 55?

We shall not consider the influence of differential mortality. The usual occupational classification of deaths makes the construction of a separate mortality table for each social class rather difficult, so we shall consider as the only cause of the increase of Curve A a constant excess of "immigrants" in Class A, coming from C and B, over "emigrants" to those classes.

There are several ways in which a salaried worker or employee, or a relative assisting in the work, can become independent, and they may be assembled under two headings: *by making a career* and *by inheritance*. A man may start a business or buy one with his savings, or rise from the lower to the highest ranks of employment: this we may call "*making a career*." But he may also inherit a sum of money, or other assets (farm, business, etc.), from a parent, father-in-law, or other relative. The probability of making a career depends on the accumulation of capital and experience, and is therefore a function of age; and so is, in a much higher degree, the probability of an inheritance. I suggest

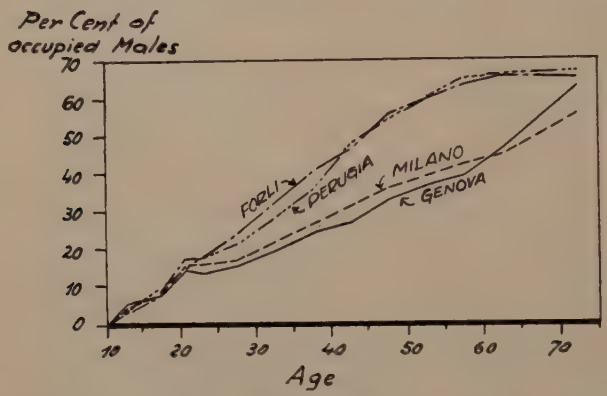
* The initial and terminal character of the curves cannot be established with precision, mainly for two reasons: (*a*) because the location of the central abscissae of the first and last age-group is more or less arbitrary; (*b*) because, quite apart from intentional misstatement of occupation, the position of many members of the youngest and oldest age-groups is rather ambiguous. Examples are: boys of school age who actually assist their parents; and older managers, artisans, professional men, etc., who report themselves as such, but in fact are retired or invalids.

For Italy we have located the central abscissa of the first age-group (10–14) at age 14, and interpolated graphically the initial part of the curves in order that at age 10 Curve C be equal to 100 per cent., and the other two curves be nought. The central abscissa of age-group 65– was located at age 72, which is the approximate average age of *all men* aged 65 or more. (Of course, this is not quite correct, since the average age of the A's is likely to be *higher* than that of the B's and *lower* than that of the C's.)

that inheritance is what imparts to Curve A its remarkable regularity. Let us consider a very simple instance. Suppose that in a stationary population all men become independent at their father's death. Let us call n the average difference between the ages of fathers and sons. At birth (neglecting posthumous children) all have their father's living, and therefore all are B's. At age 1, the ratio of fatherless children to all children will be

$$1 - \frac{l_{n+1}}{l_n}; \text{ and at age } x, \quad 1 - \frac{l_{n+x}}{l_n}$$

This rate tends towards unity. If we take 34 years as the



GRAPH 3.—PER CENT. A (EMPLOYERS, ETC.). URBAN AND RURAL

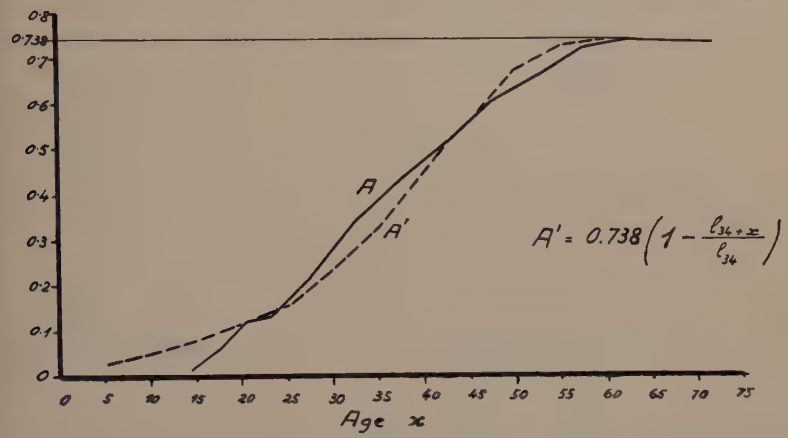
The curves show the percentage of occupied males belonging to Group A, in two predominantly rural (Forlì, Perugia) and two predominantly urban provinces (Milano, Genova). For explanation of the apex at age 20, see Graph 1.

average difference of age between fathers and sons,* then at about age 65 almost *all* men will be fatherless and, according to our hypothesis, independent. At this age, if the independent did never pass to other classes, Curve A would reach its maximum, and then it would proceed parallel to the x-axis. But since several men belonging to Class A (chiefly artisans, managers, and professional men) become invalids or pensioners before and after age 65, thus passing to Class C, a decrease in Curve A must occur sooner or later.

* In Italy (1931) the average age of mothers of living children is about 30 years; the average age-difference between husbands and wives is about four years; thus 30 + 4 = 34 years. We were obliged to calculate in this indirect way the average age-difference between fathers and sons because in Italian statistics the distribution of births by age of fathers is not given.

Let us not forget that we have considered so far a population in which the only method of becoming independent is one's father's death, and where *all* men become eventually independent. Now let us call ξ the age at which $\frac{l_{n+\xi}}{l_n}$ becomes nought. If only a fraction—e.g. 55 per cent.—of all men surviving at age ξ are independent, we must multiply the rates of the fatherless at each age by 0·55 (or whatever the rate), in order to obtain the theoretical percentages of the independent at different ages.

Graph 4 shows the result of such a calculation for the Province



GRAPH 4.—ACTUAL RATE OF INDEPENDENT (A) AND THEORETICAL RATE OF ORPHANS (A')—SONDRIO, 1931

For explanation, see text.

of Sondrio. This is a rural province of Northern Italy, in which 63·5 per cent. of the population aged 10 or more is dependent on agriculture. In the Province of Sondrio there is a predominance of small estates, as shown by the fact that only 9·7 per cent. of the males engaged in agriculture are salaried; therefore inheritance must play an important rôle as a cause of independence, and a comparatively close resemblance between Curve A and the theoretical rate of fatherless should be expected. In fact, multiplying $\left(1 - \frac{l_{34+x}}{l_{34}}\right)$ by 0·738, which is the maximum rate of the independent, we obtain figures which do not diverge very much from the actual ones.*

* We used for those calculations the mortality table "Italian males 1921–22" of the Istituto Centrale di Statistica.

This is but a rough explanation of the phenomenon; to get a better view of the facts we should take into account the mortality, and remember that many persons become independent by other means than inheritance and that there are at all ages persons who cease to be independent, becoming B's or C's.

Moreover, the populations considered diverge more or less from the stationary type, owing to variations in the natality and mortality, and to emigration. Therefore the Curves A, B, and C give a more or less distorted view of the "social evolution of a generation."

Some populations diverge from the stationary type because emigration of young people imparts to them the structure of growing populations. In such cases, if a very high fraction of the old are independent and therefore Curve A is very steep, the probability of a young man becoming independent in his old age will appear exceedingly high. It is obvious that if the young did not emigrate, many of them would remain salaried all their life, and the curves would have a quite different shape. Another reason why our curves give a distorted survey of the dynamics of social circulations is the fact that also the *occupational structure* of actual populations is far from stationary: if there is, e.g., a secular change in the rate of independent, it will affect in a different degree the various age-groups. In those countries where in recent years large concerns have come into life and grown at the expense of the small, and the number of workers and clerks has grown more quickly than the number of independent craftsmen and owners, there may be a larger proportion of independent in the older age-groups than in the young, because the old stick to their professions, while the young do not fill the vacancies caused by death.

For all those reasons we believe that the dynamic interpretation of the static curves is less objectionable when rural areas (not affected by migration) are considered, because social changes are more likely to be slow in rural than in industrial populations. This must be borne in mind when our graphs are compared.

Therefore, confining ourselves to rural populations, we can draw from the data collected above the following conclusions: The proportion between independent, salaried, and not active is mainly a function of age, of the economic type of the community (and therefore of time), and to some extent also of mortality. The rate of independent increases with age in almost arithmetical

progression, reaching a maximum between 60 and 65 years. The height of the maximum depends mainly on the extent of the subdivision of landed property.

An excellent illustration of the last statement is afforded by Graph 5 (see also Table I). Three rural provinces of Northern Italy

TABLE I

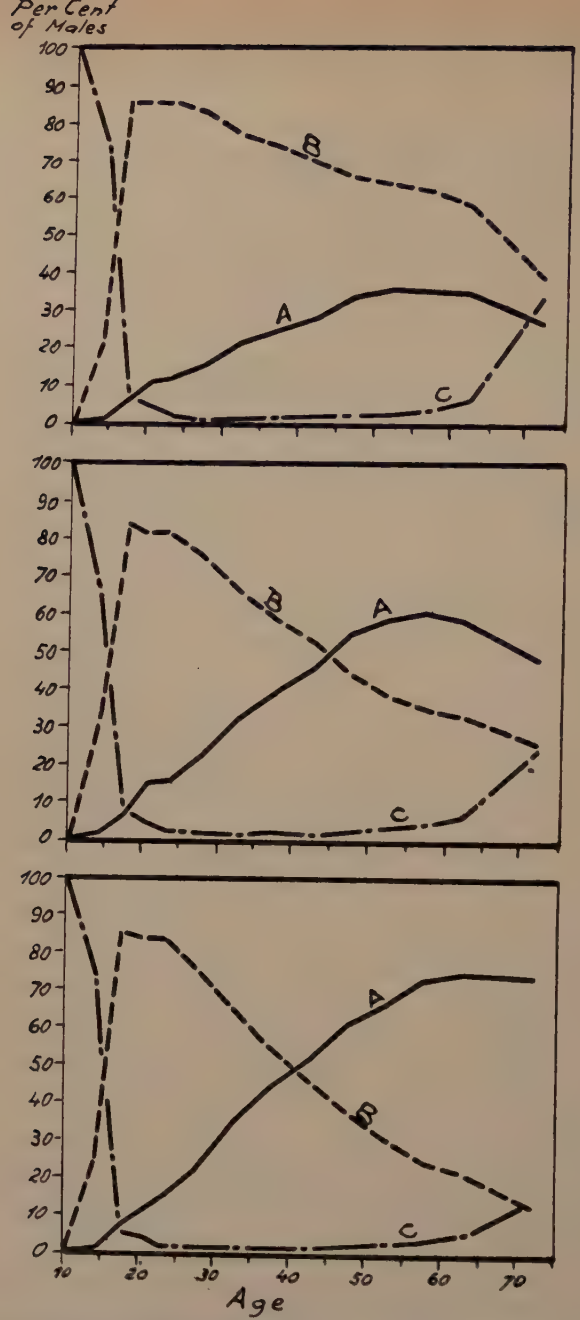
INDICES OF THE ECONOMIC STRUCTURE OF SEVERAL ITALIAN PROVINCES

	Name of Province (in Order of Rurality)	Index of Rurality[1]	Index of Subdivision of Landed Property[2]	Maximum of Curve A (Percentage of Employers, etc.)[3]	Difference between the Average Ages of A (Employers) and B (Salaried)
1	Perugia ..	65·1	81·8	61·7	15·9
2	Ferrara ..	64·5	31·3	34·9**	10·7
3	Sondrio ..	63·5	90·3	73·8*	19·7
4	Ravenna ..	63·1	61·0	48·3	13·1
5	Reggio Em. ..	62·7	64·3	60·4	15·8
6	Cuneo ..	61·3	88·2	75·2	18·2
7	Forlì	61·3	78·5	60·2	15·3
8	Modena ..	61·0	72·2	58·8	17·4
9	Parma ..	57·5	70·6	58·7*	15·2
10	Piacenza ..	55·5	65·5	56·9	15·0
11	Pagliari ..	50·9	39·2	47·5*	12·7
12	Bologna ..	44·9	64·6	43·4	12·3
13	Catania ..	43·7	42·0	49·0	11·5
14	Foggia ..	31·1	38·6	52·5	11·9
15	Torino ..	21·3	93·4	46·6*	9·9
16	Genova ..	14·0	86·6	38·8*	11·0
17	Milano ..	12·5	57·9	39·5*	10·3
18	Trieste ..	6·8	69·1	43·5	10·5

[1] Percentage of population (10 years or more) engaged in agriculture.
[2] Percentage of employers, etc., in agriculture (males only).
[3] The maximum is reached at age 50–54 for the figure marked with **; at age 60–64 for those marked *; at age 55–59 for all others.

are considered, viz. *Sondrio*, with 63·5 per cent. of its population of 10 years or more engaged in agriculture, *Ferrara* (64·5 per cent.) and *Forlì* (61·3 per cent.).

In spite of their general resemblance, the three provinces have a different economic structure. *Ferrara*, where vast moors were reclaimed in recent times, has a predominance of vast estates, as shown by the fact that 69 per cent. of all males engaged in agri-



GRAPH 5.—INFLUENCE OF SUBDIVISION OF LANDED PROPERTY ON SHAPE OF CURVES

(*Upper graph*) Province of Ferrara.
Index of rurality, 64·5—Index of subdivision of landed property, 31·3.
(*Middle graph*) Province of Forlì.
Index of rurality, 61·3—Index of subdivision of landed property, 78·5.
(*Lower graph*) Province of Sondrio.
Index of rurality, 63·5—Index of subdivision of landed property, 90·3.

culture are salaried, while *Forlì* shows a remarkable subdivision of propriety (salaried 21·5 per cent.) and *Sondrio* an extreme one (salaried 9·7 per cent.).

Therefore Curve A reaches, as could be expected, different heights in the three populations, *but this fact does not affect materially the linearity of the curves.*

It would be interesting now to continue this research extending it to other countries, and taking into full account the influence of mortality and of secular changes in the economic structure of populations.

THE GROWTH OF THE POPULATION OF RUMANIA

By Dr. PETER RAMNEANTZU
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The modern biologists have observed that population growth is not influenced so much by the supply of a certain area as by other factors. The factors which have the most important bearing on this growth are the cultural development of the population in question and its social advancement. Further, these biologists are convinced that the saturation of the population will be obtained in a longer period of time, as has been stated by others before. This conviction is based upon the fact, that the population growth is controlled automatically by the above-mentioned factors, independently of the voluntary restrictive measures proposed by Malthus.

Meantime, with the development of these ideas there came about new methods for the calculation of the population growth. These methods abandoned the erroneous point of view of Malthus, which stated that the population grows in geometrical series and doubles itself in a period of 25 years.

Among these methods the best is that of A. L. Bowley,* which takes into consideration the distribution of the population according to age and sex, and also the natality- and mortality-rates, and that of R. Pearl and L. J. Read,† which takes into consideration the migration too. In the calculations with the last method the figures of the population censuses are used.

In the prediction of population growth on the actual territory of Rumania we used the method of the logistic curve, as it was given by Pearl and Read. The census figures used were those available between the years 1869–1930. Before this period there are no reliable figures. Even for this period of time, for the territories annexed to Rumania after the World War it was necessary to gather them for each village, and for each census made within this period. The equation with the figures (in millions) used for these calculations is as follows:

$$y - 3{\cdot}000 = \frac{33{\cdot}000}{1 + 2{\cdot}5905\, e^{-0{\cdot}0192x}}$$

In the following table are given the figures of the observed population at the censuses, and the calculated population.

* Professor A. L. Bowley, "Births and Population in Great Britain" (*Economic Journal*, London, No. 134, 1924).

† Pearl, *Introduction to Medical Biometry and Statistics*, London, 1930.

From the table we may see that the greatest difference between the observed and calculated population is for the year 1910. This difference in millions is 0·716, or 4·5 per cent. of the total population observed at that year. The root-mean-square deviation of all differences equals 0·041 millions; in other words, we may say that the curve fits well to the observations. This is the reason why we did not repeat the process to obtain the second approximation to the best fitting curve.

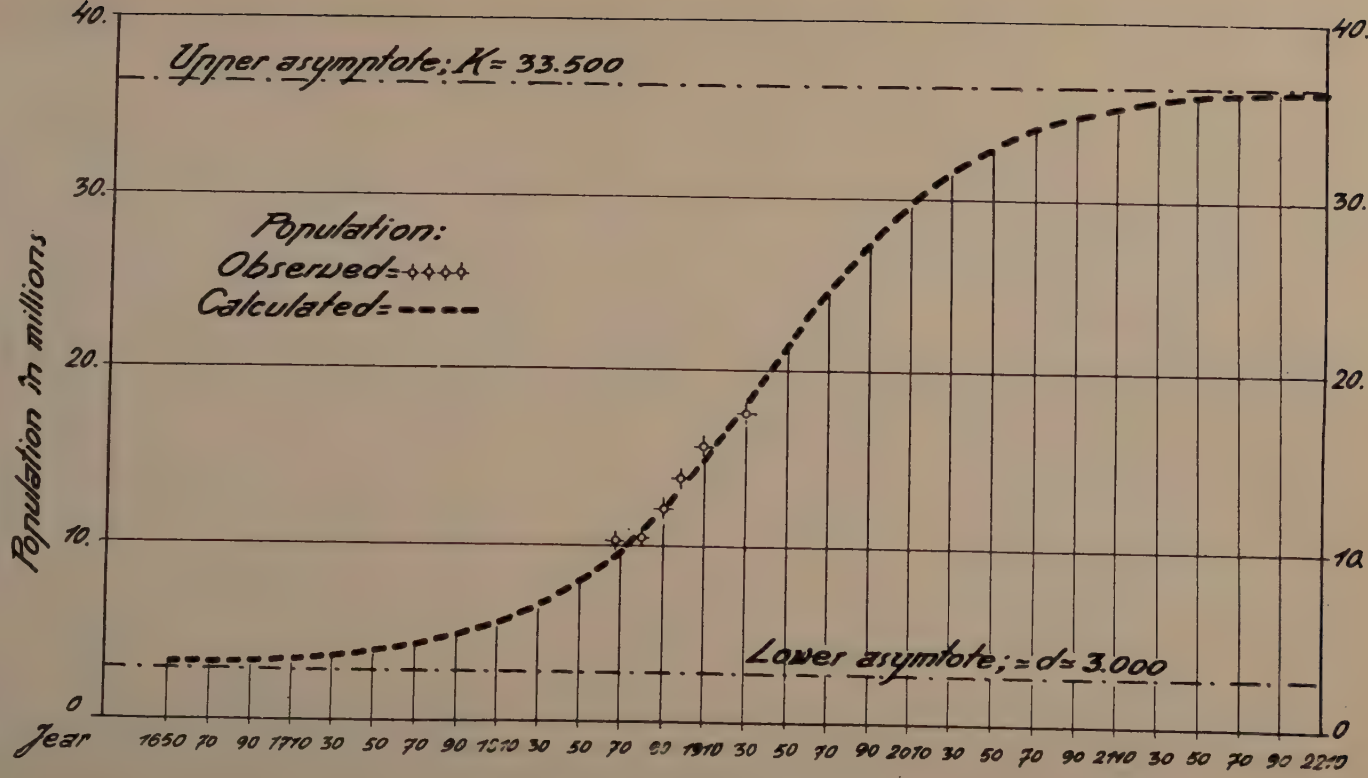
THE OBSERVED AND CALCULATED POPULATION FOR RUMANIA

Year	Population in Millions		Year	Population in Millions	
	Observed	Calculated		Observed	Calculated
Lower Asympt.		3·000	1930	18·053	18·227
1650		3·127	1940		19·834
1700		3·331	1950		21·440
1750		3·853	1960		23·014
1770		4·238	1970		24·531
1790		4·788	1980		25·967
1810		5·563	1990		27·304
1820		6·057	2000		28·531
1830		6·635	2030		31·504
1840		7·307	2060		33·499
1850		8·082	2100		34·974
1860		8·968	2150		35·926
1869	10·407	9·865	2200		36·278
1880	10·776	11·092	2250		36·415
1890	12·327	12·330	Upper asympt.		36·500
1900	13·908	13·678			
1910	15·840	15·124			
1920	—	16·648			

The following graph shows us this good fit of the curve to the observed population.

From this graph we may see that the population of Rumania will grow at a great rate until the year 2030. After this date the increase will be smaller until the summit of 36,000,000 is reached, when complete saturation is achieved.

The relative density of the population for the actual territory will not exceed 124 inhabitants per one sq. km. This density will be somewhere between the actual density of Czechoslovakia and Italy, although the natural resources of Rumanian soil are greater than those of these countries.



THE POPULATION GROWTH OF RUMANIA

SOCIO-BIOLOGICAL STUDIES IN THE BALKANS.—II

Infant and Maternal Mortality in Jugoslavia, with a Background of General Conditions

By OLIVE LODGE, M.A.

I

Conditions in most of the villages of Jugoslavia are so different from those obtaining in England, both with regard to geographical position and climate, and the habits and mode of life of the people, that it seems advisable to give a short sketch indicating some details of the lives of women and children, and the circumstances of childbirth among Serbian Orthodox peasants, before stating exact figures and tables of maternal and infant mortality.

A consideration of the statistics concerning an intelligent people living under very simple and hard conditions is of interest, especially when they are a hardy and virile race.

In many of the remote villages, medical aid is almost unobtainable. To consult a doctor, or to go to a hospital, sick peasants still have to journey long distances to the nearest town, although quite recently in some of the larger villages small dispensaries have been set up, which are visited once a week or fortnight by a doctor. But in many cases the peasants treat their own ailments, often with curious but effective remedies.

II

In villages it is the universal custom for women to work in the fields, a week of housekeeping and cooking alternating with a week of field work. Their out-of-door work consists of planting and weeding, hoeing maize or cabbages, helping with the harvests—gathering maize cobs or tobacco leaves, reaping with sickles, binding corn, picking fruit, and so on. Work begins at sunrise, and lasts until evening, with, of course, pauses for meals, and usually an hour's relaxation or sleep in the shade at midday. Their help is necessary with the work of the *zadruga* or family-group, which still persists in many districts, although its break-up has already begun in the more accessible regions. Moslem women, however, except the very poorest, do no field work, unless the land is within the high walls that surround their houses and grounds, though the Roman Catholic peasant women of Croatia, Bosnia, and other districts do the same kind of out-of-door work as the Serbians.

Women work right up to the time of childbirth—sometimes even after the onset of labour, and babies are frequently born in the fields. As the peasants say, "Well or ill, the work has to be done." But adherence to this maxim sometimes leads to disastrous results.

Women, as a rule, have easy deliveries, with very short labour, lasting sometimes ten minutes, or even less. If labour is long—two hours, or one to two days—they generally rest. I have, however, known instances where the child was born after only a single pain, as was the case with a woman in a village near Tetovo, in Serbian Macedonia. That week it happened to be her turn to act as *mesarija*, or housekeeper, in the *zadruga*, which here consisted of some forty souls. She was bread-making, had set four loaves to bake, and had put four other pans on the hot ashes ready for the next batch. She went to the shed for more wood and a skein of black thread to finish a piece of embroidery, so as not to waste her time watching the bread. After she had collected a pile of wood, and, with one foot on a log, was reaching up for the thread, she suddenly felt a stab of pain, and, hastily putting her foot to the ground, looked down, to see the baby's head already there. She called to her mother-in-law, meanwhile tying the cord in two places, and cutting it as usual with her pocket-knife. Her mother-in-law carried the baby into the house, and the mother followed as soon as the placenta had come away. She did no more work that day, but on the morrow was about as usual.

Serbian women seem to like to be alone when their babies are born, and have been known to go out into the snow when no free space was available indoors. The wife of a teacher in a village elementary school in Macedonia told me that when her fifth and youngest child was born (1910) it was evening. While she fetched water from the village fountain and made up the fire in readiness to heat the water, her husband cleared a space in the loft in case the other children did not go to sleep in time in their one living-room. As it happened the children did go to sleep, so the baby was born in the room instead of in the loft.

As recently as 1932 another quite young woman, a teacher in a Serbian village, determined to have her second child born without any fuss when she was by herself. So she asked her mother-in-law to buy something in the next village, and her husband to go to the forest for more wood. They returned to find mother

and baby doing well. I saw her the next day when she was resting, as she had heard that it was now the fashion to lie up for a few days.

In villages round Tetovo, a woman helper as soon as the baby is born usually washes it in warm water and wraps it up in some clothes. If it is born in the fields, she simply wraps it up, carries it home, and then washes it. The mother follows after the placenta has come away. This is occasionally dried and kept by the peasant women, wrapped in a scarf in their chests, as they consider that it brings good luck. But midwives, after having seen that it is complete, bury it.

As soon as the baby is washed and settled, an old woman takes a flask of holy water and a bunch of the holy herb basil to the priest to be blessed. She also notifies him of the birth, so that he can read the appropriate prayers and bestow the temporary name, which does duty until the christening, when the child receives its real name. The priest baptizes the child, notifies the legal authority of the birth, and writes in the church register whether it is the first or second child, or whether twins have been born, and so on.

As soon as the *baba* returns, she mixes a little of the holy water with warm water in the wooden or zinc trough used for washing clothes, and bathes the baby again. But first she must tell the family the child's temporary name. The baby is generally washed in front of the kitchen fire, and when this is finished the mother goes into another room, or into the *podrum* (cellar store-room), to wash first herself and then her clothes, putting on clean raiment. Into both waters she must pour some of the holy water, for, until this has arrived, she may not wash. The remainder of the holy water is very carefully kept for future use —to be drunk by the mother if her milk is scanty or fails altogether, and by the baby if it is ill. No water may be taken to the priest to be blessed until the baby is born. If the mother dies, or has no milk, the baby is sometimes bottle-fed; but since the bottles are generally odd makeshifts, it often does not survive such feeding. During the mother's turn for working in the fields the baby may be left to be fed by a neighbour who happens to be at home. The older children generally accompany their mother and play under the trees while she is at work.

Breast-feeding for a year or eighteen months at least is the

rule for all babies. But I have known cases where the children were suckled for several years, even as long as six years: sometimes both baby and ex-baby at the same time. Children, however, begin to eat other food long before the mother has given up feeding them, and then generally have the same food as adults—cheese, fruit, meat, soup, wine, and bread. Small babies are always given the breast whenever they cry or are restless; and there seem to be no regular feeding times. At meals, if a baby cries, the mother feeds it and then puts it down again. I have sat at village feasts when four or five women have fed their babies at intervals during the meal.

If, after the birth, the mother feels ill she may lie in a rug on the floor in the verandah—room near the cradle.* But if she feels well, she sits on one of the ordinary little wooden stools while she spins or knits, rocking the cradle with her foot. Women do not wear any special belts or binders, but merely their ordinary belts, wound as usual tightly several times round the abdomen. These belts are often hand-woven and made of brightly coloured wool, hemp, or cotton. They form part of the ordinary dress of both men and women.

For the first three days of a baby's life a little holy water is poured into its bath water. For the next forty days it is washed every day, and then every other day until it is three years old, after which it has the usual weekly bath. Peasants usually change all their clothes once a week, after their bath.

Peasant babies do not usually wear special clothes, but are first wrapped in a piece of linen or cotton, and then in one or more layers of woollen stuff, like that used for skirts or aprons. Over this the swaddling bands are wound, round the legs only, to make them grow tall and straight, the mothers say, so that they often look like Della Robbia *bambini*. The duration of swaddling varies according to the season of birth: spring and summer babies are swaddled only a short time, but autumn and winter babies keep their bands until the following spring. Theoretically the arms are left free, but they are always very carefully covered with several thicknesses, which are tightly tucked into the wooden cradle. The face is also protected by one or more pieces of hand-woven linen, or cotton, often with silk stripes, to keep off draughts and flies. A few blue beads are generally tied

* It is still the custom in most Macedonian villages for both Christians and Moslems to sleep on the floor, on sheepskins or rugs.

to a tuft of its hair, to keep off the Evil Eye. In some districts triangular amulets hang round the baby's neck.

The method of carrying babies varies in different parts of the country. In the Sandjak the peasant mothers carry their babies in their cradles on their heads, covered with an embroidered scarf, steadying them with a rake or hoe as they walk to their work in the fields. Round Skoplje they hold the cradles on their shoulders, and in Old Serbia these are slung across the back. Round Pirot, however, the baby is instead well wrapped up in a white striped rug slung across the mother's back. On Kosovo Polje the women hold their infants in their arms, wrapped in a shawl or rug.

The usual weight of babies seems to be between six and ten pounds, though naturally they weigh less if the mother has been poorly nourished. Their necks and heads also seem to be firmer than those of our babies. Serbian babies usually begin to walk and talk at nine months.

Children begin to help at home when quite small: little girls of four or five, carrying miniature pitchers, go with their mothers to fetch water from the village fountain or spring. Small children of both sexes hold the cow's tail to keep it out of the way while their mother is milking, or prevent the calf from drinking the milk. Older children are employed in looking after the sheep or goats, or minding the cows; in some districts each son in turn spends a year at this work. Girls learn to knit, spin, and embroider at a very early age, and often begin quite young to make simple presents to be put in their "bottom drawer"—for generally the bride must give a present to all the wedding guests, according to their degree.

There seems to be little artificial restriction of families, and the use of contraceptives is rarely practised in villages. Children are desired, and are considered the natural result of marriage. Large families also are needed to cultivate the soil and look after the stock. Most peasants own their houses and land, and, especially amongst the Serbian Orthodox peasants, employ very little hired help. Barren women often take great pains to have a child, and visit the *banje* or spas, and eat special foods, such as clover called *detalina*, because it brings children, especially when it has four or five leaves. They also pray before certain ikons.

Sometimes simple methods of birth-control are now employed —more often in towns than in villages. I have come across the

following. To prevent conception the women wash out the vagina with strong pure vinegar, made from wine, considering it very sure, because of its strength and acidity. The men sometimes use sheaths, which are expensive, and cost, I am told, about ten shillings. Pessaries can also be bought by the women, but frequently husbands will not permit their use, beating their wives if they discover them. The Greek women round Salonika use the powder *aršit* or *aršik* (boric powder), with which they dust out the vagina as far up as possible. They told some Serbian women that this was very effective as well as being very cheap.

Abortion is legally forbidden, but on occasions it is performed by midwives and doctors. Women themselves, when wishing to induce abortion, drink a mixture of very strong *rakija* (spirit distilled from plums, grapes, or other fruit) and a quantity of shot from cartridges boiled up together. This concoction is drunk as hot as possible. At the same time hot bottles or bricks must be applied to the waist and abdomen. This is considered very effective, although one woman told me that she had tried it repeatedly after her fourth conception, but found it quite useless, and at nine months she gave birth to a perfectly healthy normal child. Another woman from Macedonia said that she did not want another child because she had become infected with syphilis by her husband. She had borne two live children, one of them infected. She tried drinking a decoction of boiled oleander leaves and sometimes also one of the boiled leaves of sweet basil: this latter was very bitter. She drank them repeatedly from the first month onwards, and applied hot bottles back and front. Not until the fourth month did she induce abortion, when she was very ill for two nights. Many women said that if the methods for inducing abortion were unsuccessful after the fourth month, they desisted, as they did not wish to harm either themselves or their offspring. Another woman's mother-in-law, who knew of a certain remedy, would not disclose it to her daughter-in-law until after the birth of her fourth child, as it could be used only by women who had borne four children. In parts of Serbia round Niš the women drink hot beer mixed with the white flowers of a certain plant, whose name, unfortunately, they did not know, and which was not in bloom when I was there. "Two glassfuls of beer, in which these flowers are steeped, must be boiled until they become one." Midwives sometimes insert long needles (about ten inches) as far as possible up the vagina. This is occasionally

successful, but more often the women die of blood-poisoning. Some women, at the time when menstruation would have occurred, drink one or other of the above decoctions, also using hot sitz-baths: the tin-lined copper cauldron which generally hangs over the kitchen fire is diverted to this purpose. Again, in some districts during the War, in the hope of inducing abortion, some heavy article, such as a sewing-machine, was lifted several times above the head.

III

These short notes on the life of women and children in villages serve as a background for the information supplied by the following tables on infant and maternal mortality. They have been compiled from random samples of family histories taken from certain villages in the different districts of Jugoslavia. Preference was given to the regions most remote from Western civilization, so that conditions might be studied and information recorded of old customs and ideas before the rapid advance of modern innovations caused their disappearance. A certain number of town families were investigated, for purposes of comparison. They, too, were chosen at random.

I have again kept to the old historical and political names of the provinces, instead of using those of the nine newer administrative districts or *banovine*, into which the country was divided in 1929–30. District I comprises Serbia (the pre-War kingdom of Serbia), *District II* Old Serbia and the Sandjak of Novi Pazar, *District III* Macedonia or Southern Serbia, as it is now more generally called, *District IV* Croatia, Bosnia, and Hercegovina, *District V* Dalmatia, and *District VI* Metohija and Montenegro. (For further details of them, see my article in *Population*, vol. 1, no. 3, November 1934.)

Most of the genealogies were personally collected. This took time, as travel conditions were often very rough and "primitive," frequently necessitating long rides over the mountains by mule-tracks, in order to reach the distant villages. Information also had often to be pieced together under difficulties—in the midst of family or social gatherings, under the fire of many questions, and of great curiosity on the part of the villagers. But I have always found them very friendly, and willing to give all the information they had. Dates, or the exact ages of people, however, were often hard to come by, since frequently they had to be calculated

from national, political, village, or family events. The peasants evinced great surprise that such unimportant or, in their eyes, such ordinary events should ever be of any outside interest at all.

I have, for the sake of accuracy and simplicity, divided my material into:

Group A, Completed Families, in which the mothers were born 1800-1884. (*See Tables I–II.*)

Group B, Almost Completed Families, with mothers born between 1885–1889. (*See Tables III–IV.*)

Group C, Incomplete Families, with mothers born from 1890 onwards. (*See Tables V–VI.*)

The dates are fixed by the mother's birth; but in a few cases, when this was not known, that of the father has been taken. I have included in these tables only those families in which details of the number and date of all the offspring were known, rejecting the numerous cases in which such information was incomplete. (Childless marriages, of course, have also been omitted here.) This limitation has approximately halved my material, but naturally gives more accurate results.

In these tables the infant mortality is calculated on the total number of births: maternal mortality is based on the total number of deliveries, i.e. twins and triplets count as one birth. But in the tables only the total number of deliveries is given.

Separate figures have been given for families of the same race, in the various villages and towns, according to their religion. Calculations of infant mortality have also been made for all families belonging to the same race, irrespective of their religion. In some cases when the numbers were small, the figures refer to this second group only. Infant deaths are reckoned per thousand full-term births, including live and still births, but omitting miscarriages and abortions. It is probable that in some of the completed families all the still-births were not recorded: some of the earlier cases have most likely been forgotten. All children now alive, and still under the age of one year, have been excluded when calculating infant mortality. This applies to the incomplete families of Group C, where the mothers were born from 1890 onwards. Again, in these tables the term "married women" and not "mothers" has been purposely used, because practically all mothers are married. Extra-conjugal relationships and

illegitimate children are almost unknown in villages, public opinion and family tradition being very strongly opposed to this. Early marriages also are the rule: only the unfit, in mind or body, remain unwed.

The actual numbers of married women dying from all causes in the various towns and villages of the different districts have been given as a matter of interest, but the death-rate per thousand has not been calculated.

Tables I–VI give, in column 1, the names of the various villages or towns in the different districts for each of the three groups A, B, and C of completed, almost completed families, and incomplete families respectively. Column 2 notes the race and religion of the families in the group, column 3 the total number of married women, and column 4 the numbers of children born (see note above). Column 5 shows the total deaths of infants age 0–1 year, while columns 6 and 7 give respectively the numbers of married women dying in childbirth and from all causes. Column 8 shows the average size of family, and column 9 the infant mortality with the standard error.

To consider infant mortality first, *Table I* gives particulars of the completed village families of Group A, where the mothers were born 1800–1884. Here,(1) amongst the Orthodox Slavs or Serbs, the highest infant mortality of 193 was found in District II (Old Serbia and the Sandjak of Novi Pazar). Districts III and IV (Macedonia and Croatia, with Bosnia and Hercegovina), however, are very near with 192 and 191 respectively. The lowest infant death-rate of 87 per 1,000 occurred in District VI (Metohija and Montenegro). The infant mortality for all Orthodox Slavs in all six districts was 177. Infant mortality calculations were also made for all districts together except III, to see if any differences appeared between the well-known "mixed" Slav population of this region and the (pure) Serbian inhabitants of the other districts. No significant difference was found: the infant death-rate among all Orthodox Slavs, excluding Macedonia or Southern Serbia, was 169 per 1,000, against 177 for all Orthodox Slavs and 192 for Macedonia alone.

The number of births in the separate districts among (2) the Roman Catholic Slav or Croatian families of Group A, living in villages, was too small for separate calculation, but in all districts together the infant death-rate was found to be 192 per 1,000 births. The same restriction applied to (3) the Moslem Slavs or Bosnijaks,

TABLE I

(A) INFANT AND MATERNAL MORTALITY IN CERTAIN VILLAGES IN JUGOSLAVIA: FOR COMPLETED FAMILIES—MOTHERS BORN 1800–1884

District	Race and Religion	Total Married Women	Total Children	Number of Children Died 0–1 Year	Number of Married Women Died in Childbirth	Number of Married Women Died from all Causes	Average Size of Family	Infant Mortality with Standard Errors
(1) DISTRICT I								
Caribrod, Mountain Villages	Orthodox Slavs or Serbs	45	237	24	0	16		
Serbian, Mountain Villages		31	146	19	0	10 (+1?)		
Serbian, Plain Villages		3	20	6	0	1		
Pirot, Plain Villages		50	263	37	0	5		
Pirot, Mountain Villages		54	298	69	0	17		
Pirot, Mountain (syphilis) Villages ..		46	267	45	1	15		
Total of I		229	1,231	200	1	64 (+1?)	5·4	162±11
DISTRICT II								
Novi Pazar and Tutin, Villages	Orthodox Slavs	23	120	21	1	10		
Vitoš *Zadruga*		19	111	26	0	8		
Kosovo Polje, Villages		29	199	30	0	20 (+3?)		
Prizren, Mountain Villages		18	111	20	1	8		
Prizren, Plain Villages		15	100	27	0	6		
Total of II		104	641	124	2	52 (+3?)	6·2	193±15

District III								
Galičnik Village	Orthodox Slavs	1	12	0	0	1		
Ristana, Villages		135	734	146	3 (+4?)	65 (+1?)		
Tetovo and Jelošnik, Villages		14	77	10	1	2		
Bela Višta, ...		6	38	6	0	4		
Dunje		13	69	24	0	6 (+1?)		
Prilep, Plain Villages		23	140	23	0	11		
Bitolj, Mountain Villages..		6	28	2	0	1 (+1?)		
Demir Kapija		3	19	4	1	2		
Ohrid, Villages		16	83	} 17	{ 1	4		
Ohrid families (abroad)		1	4	}	{ 0	0		
Struga, Villages		2	16	4	0	0		
Valandovo		4	32	8	0	1		
Sv. Naum, Villages		3	20	0	0	0		
Total of III		237	1,272	244	6 (+4?)	97 (+3?)	5·4	192±11
District IV								
Plitvice Jezere, Villages	Orthodox Slavs	7	54	11	0	4		
Sarajevo, Mountain Villages		7	61	8	0	4		
Sarajevo, Plain Villages		5	40	8	0	2		
Travnik, Mountain Villages		12	102	22	0	4		
Totals of IV		31	257	49	0	14	—	191±34
District V								
Kotor, Villages	Orthodox Slavs	3	17	6	0	1		

TABLE I—*continued*

District	Race and Religion	Total Married Women	Total Children	Number of Children Died 0–1 Year	Number of Married Women Died in Childbirth	Number of Married Women Died from all Causes	Average Size of Family	Infant Mortality with Standard Errors
DISTRICT VI								
Peć, Villages	Orthodox Slavs	13	70	6	0	6		
Montenegro, Villages		21	116	10	0	6		
Podgorica, Villages		5	22	2	0	1		
Total of VI		39	208	18	0	13	5·3	87±26
Totals for all Orthodox Slavs in all districts (I–VI)		643	3,626	641	9 (+4?)	241 (+7?)	5·6	177±6
Totals for all Orthodox Slavs, except those in District III, Macedonia		406	2,354	397	3	144 (+4?)	5·8	169±8
(2) DISTRICT IV								
Karlovac, Villages..	Roman Catholic	2	11	2	0	1		
Travnik, Villages	Slavs or Croats	1	7	1	0	0		
Sarajevo, Mountain Villages		5	39	10	0	2		
Sarajevo, Plain Villages		1	9	5	0	0		
Total of IV		9	66	18	0	3		

DISTRICT V								
Split, Villages	Roman Catholic Slavs	9	87	15	0	1		
Dubrovnik, Villages		20	104	10	2	5		
Kotor, Villages		5	29	12	0	1		
Total of V		34	220	37	2	7		
Total for all Roman Catholic Slavs in all districts (I–VI) ..		43	286	55	2	10	6·7	192±23
(3) DISTRICT II								
Novi Pazar, Villages	Moslem Slavs (*Bosnijaks*)	5	37	7	0	2		
Prizren, Plain Villages		1	10	2	0	5		
Total for II		6	47	9	0	7		
DISTRICT IV								
Travnik, Villages	Moslem Slavs	15	118	32	1	8		
Sarajevo, Mountain Villages		5	22	5	0	2		
Totals for IV		20	140	37	1	10		
Total for District VI, Peć Villages ..	Moslem Slavs	5	24	4	0	0		
Totals for all Moslem Slavs in all districts (I–VI) ..		31	211	50	1	17	6·8	237±23
Total for all Slavs, irrespective of religion, for all districts (I–VI)		717	4,123	746	12 (+4?)	268 (+7?)	5·8	181±6

TABLE I—*continued*

District	Race and Religion	Total Married Women	Total Children	Number of Children Died 0–1 Year	Number of Married Women Died in Childbirth	Number of Married Women Died from all Causes	Average Size of Family	Infant Mortality with Standard Errors
(4) DISTRICT II								
Total Prizren, Plain Villages	Roman Catholic Albanians	7	26	4	0	5		
DISTRICT III								
Total Tetovo, Villages	Moslem Albanians	1	12	1	0	0		
DISTRICT VI								
Total Streoc Villages	Moslem Albanians	1	4	1	0	0		
Total of all Moslem Albanians in all districts		2	16	2	0	0		
Total of all Albanians, irrespective of religion, in all districts (I–VI)		9	42	6	0	5		

TABLE II

(A) INFANT AND MATERNAL MORTALITY IN CERTAIN TOWNS IN JUGOSLAVIA: FOR COMPLETED FAMILIES—MOTHERS BORN 1800–1884

District	Race and Religion	Total Married Women	Total Children	Number of Children Died 0–1 Year	Number of Married Women Died in Childbirth	Number of Married Women Died from all Causes	Average Size of Family	Infant Mortality with Standard Errors
(1) DISTRICT I								
Total Pirot	Orthodox Slavs	1	15	3	0	0		
DISTRICT II								
Novi Pazar and Sjenica	Orthodox Slavs	44	248	55	0	16		
Priština and Giljan		58	421	90	1	25		
Prizren		1	2	0	0	1		
Total for II		103	671	145	1	42	6·5	216±16
DISTRICT III								
Tetovo and Skoplje	Orthodox Slavs	24	139	16	0	9		
Ristana's family in Tetovo and Skoplje ..		31	136	25	0 (+2?)	12		
Kavedar Prilep and Kruševo		18	105	28	1	8		
Debar		1	9	2	0	0		
Total for III	Orthodox Slavs	74	389	71	1 (+2?)	29	5·3	183±20
DISTRICT IV								
Total Trebinje		2	4	1	0	1		
Total for all Orthodox Slavs in all districts (I–VI)		180	1,079	220	2 (+2?)	72	6·0	204±11

TABLE II—*continued*

District	Race and Religion	Total Married Women	Total Children	Number of Children Died 0–1 Year	Number of Married Women Died in Childbirth	Number of Married Women Died from all Causes	Average Size of Family	Infant Mortality with Standard Errors
(2) DISTRICT II								
Prizren	Roman Catholic	4	36	3	0	1		
Janjero	Albanians	7	53	13	0	3		
DISTRICT VI								
Peć	Roman Catholic Albanians	2	21	3	0	0		
Total Roman Catholic Albanians in all districts (I–VI) ..		13	110	19	0	4	—	173±36
DISTRICT II	Orthodox Gipsies	9	64	11	1	2		
DISTRICT IV								
Trebinje	Moslem Gipsies	1	11	0	0	0		
Total for all Gipsies, irrespective of religion, in all districts (I–VI)		10	75	11	1	2	—	147±41
DISTRICT II								
Total Priština	Spanish Jews	6	39	1	0	0 (+1?)		

Table III

(B) INFANT AND MATERNAL MORTALITY IN CERTAIN VILLAGES IN JUGOSLAVIA: FOR ALMOST COMPLETED FAMILIES—MOTHERS BORN 1885–1889

District	Race and Religion	Total Married Women	Total Children	Numbers of Children Died 0–1 Year	Number of Married Women Died in Childbirth	Number of Married Women Died from all Causes	Average Size of Family	Infant Mortality with Standard Errors
(1) District I (1)								
Caribrod, Villages	Orthodox Slavs	13	67	6	0	0		
Pirot, Plain Villages		12	53	5	0	2		
Serbia, Mountain Villages		5	13	1	1 (+1?)	2		
Pirot, Mountain Villages		20	107	16	0	2		
Pirot, Mountain (syphilis) Villages ...		10	35	14	0	3 (+1?)		
Total of I		60	275	42	1 (+1?)	9 (+1?)	4·6	153±22
District II								
Tutin, Villages	Orthodox Slavs	5	22	8	0	1		
Novi Pazar, Mountain Villages		10	40	14	0 (+1?)	3		
Miloševo, Villages		6	24	2	0	0		
Kosovo Polje, Villages		2	9	0	0	1		
Prizren, Plain Villages		2	3	0	0	0		
Prizren, Mountain Villages		6	21	1	0	0		
Total of II		31	119	25	0 (+1?)	5	—	210±33
District III								
Sv. Naum, Villages	Orthodox Slavs	1	4	1	0	0		
Ohrid, Villages		4	20	6	0	0		
Dunje		4	16	2	0	1		

TABLE III—*continued*

District	Race and Religion	Total Married Women	Total Children	Number of Children Died 0–1 Year	Number of Married Women Died in Childbirth	Number of Married Women Died from all Causes	Average Size of Family	Infant Mortality with Standard Errors
DISTRICT III (*continued*)								
Prilep, Plain Villages	Orthodox Slavs	5	26	2	0	1		
Bitolj, Mountain Villages..		2	9	0	0	0		
Demir Kapija		3	15	5	0	1		
Galičnik		5	19	3	0	1		
Ristana's Family Villages		16	86	7	0	2		
Total of III		40	195	26	0	6	4·6	133±26
DISTRICT IV								
Travnik, Villages	Orthodox Slavs	5	20	4	2	2		
Sarajevo, Plain Villages		1	3	0	0	0		
Total of IV		6	23	4	2	2		
DISTRICT V								
Kotor, Villages	Orthodox Slavs	2	6	2	0	0		
Dubrovnik, Villages		1	3	0	0	0		
Total of V		3	9	2	0	0		
DISTRICT VI								
Peć, Villages	Orthodox Slavs	5	23	7	0	1		
Montenegro, Villages		5	24	0	0	0		
Podgorica, Villages		2	9	0	0	0		
Total of VI		12	66	7	0	1		

Total of all Orthodox Slavs in all districts (I–VI)		152	687	106	3 (+2?)	23	4·5	154±14
(2) District IV (2)								
Sarajevo, Mountain Villages	Roman Catholic	1	11	4	0	0		
Karlovac, Villages	Slavs	1	3	1	0	0		
District V								
Dubrovnik, Villages	Roman Catholic	7	37	2	0	0		
Split, Villages	Slavs	4	21	2	0	0		
Kotor, Villages		2	10	1	1	1		
Total of all Roman Catholic Slavs for all districts (I–VI) ..		15	82	10	1	1	—	122±36
(3) District II (3)								
Prizren, Mountain Villages	Moslem Slavs	8	11	1	0	0		
District IV								
Sarajevo, Mountain Villages	Moslem Slavs	1	10	1	0	0		
Travnik, Mountain Villages		1	3	2	0	0		
Total of all Moslem Slavs in all districts (I–VI)		2	13	3	0	0		
Total for all Slavs, irrespective of religion, in all districts (I–VI)		169	782	120	4 (+1?)	24	4·6	153±4
(4) District II								
Prizren, Plain Villages	Roman Catholic Albanians	1	1	0	0	1		
District VI								
Peć, Villages	Moslem Albanians	1	5	0	0	0		
Total of all Albanians, irrespective of religion, for all districts (I–VI)		2	6	0	0	1		

TABLE IV

(B) INFANT AND MATERNAL MORTALITY IN CERTAIN TOWNS IN JUGOSLAVIA: FOR ALMOST COMPLETED FAMILIES—MOTHERS BORN 1885–1889

District	Race and Religion	Total Married Women	Total Children	Number of Children Died 0–1 Year	Number of Married Women Died in Childbirth	Number of Married Women Died from all Causes	Average Size of Family	Infant Mortality with Standard Errors
(1) DISTRICT I								
Total Pirot	Orthodox Slavs	1	16	7	0	0		
DISTRICT II								
Novi Pazar	Orthodox Slavs	3	8	6	0	1		
Sjenica		6	29	2	0	1		
Priština		14	52	8	0	4		
Prizren		1	10	4	0	0		
Total of II		25	115	27	0	6		
DISTRICT III								
Kavedar	Orthodox Slavs	1	4	0	0	0		
Ristana's family in Tetovo and Skoplje ..		9	39	4	0	0		
Ristana's family abroad		2	5	1	0	1		
Kruševo		1	2	1	0	0		
Tetovo and Skoplje		4	26	4	0	0		
Total of III		17	76	10	0	1		
Total of all Orthodox Slavs in all districts (I–VI)		42	191	37	0	7	4·5*	194±29

DISTRICT II							
(2) *Total* Novi Pazar	Moslem Slavs	2	9	1	1	2		
DISTRICT IV							
Total Trebinje		2	5	1	0	1		
Total of all Moslem Slavs in all districts (I–VI)		4	14	2	1	3		
Total of all Slavs, irrespective of religion, in all districts (I–VI)		46	205	39	1	10	4·5*	190±27
(3) DISTRICT II								
Janjevo	Roman Catholic Albanians	1	2	0	0	0		
Total of all Roman Catholic Albanians in all districts (I–VI) ..		1	2	0	0	0		
(4) DISTRICT II								
Priština	Spanish Jews	2	20	0	0	0		
Total of all Spanish Jews in all districts (I–VI)		2	20	0	0	0		
(5) DISTRICT IV								
Trebinje	Moslem Gipsies	2	11	6	0	0		
Total of all Moslem Gipsies in all districts (I–VI)		2	11	6	0	0		

* These numbers were too few for great importance to be attached to these figures.

Table V

(C) INFANT AND MATERNAL MORTALITY IN CERTAIN VILLAGES IN JUGOSLAVIA: FOR INCOMPLETE FAMILIES—MOTHERS BORN AFTER 1890

District	Race and Religion	Total Married Women	Total Children	Number of Children Died 0–1 Year	Number of Married Women Died in Childbirth	Number of Married Women Died from all Causes	Average Size of Family	Infant Mortality with Standard Errors
(1) District I								
Caribrod, Villages	Orthodox Slavs	107	274	36	2 (+1?)	7		
Serbia, Plain Villages		10	33	6	1	1		
Serbia, Mountain Villages		80	186	15	0	6		
Pirot, Mountain Villages		134	396	73	0	7 (+1?)		
Pirot, Plain Villages		149	427	58	1	15		
Pirot, Mountain (syphilis) Villages ..		95	232	25	2	11 (+3?)		
Niš, Villages		1	3	1	0	0		
Total for I		576	1,551	214	6 (+1?)	33 (+4?)		138±9
District II								
Novi Pazar, Villages	Orthodox Slavs	42	123	17	0	1		
Glodjević *Zadruga*		51	142	37	1	2		
Tutin, Villages		33	101	7	0	3		
Prizren, Mountain Villages		55	161	29	0	2		
Prizren, Plain Villages		28	84	23	0	0		
Kosovo Polje, Villages		43	128	16	0	3		

Gračanica, Villages		8	19	2	0	0		
Miloševo, Villages		24	66	4	0	2		
Total of IV		284	824	135	1	13		164±12
DISTRICT III								
Sv. Naum, Villages	Orthodox Slavs	8	21	1	0	0		
Ohrid, Villages		32	122	23	0	0		
Struga, Villages		4	8	1	1	1		
Bela Višta and Tetovo, Villages ..		13	56	3	0	1		
Galičnik		10	18	5	1	2		
Bitolj, Mountain Villages		17	53	10	0	1		
Prilep, Plain Villages		51	161	36	0	2		
Dunje		10	18	0	0	0		
Demir Kapija		7	17	2	0	0		
Jelošnik		18	45	9	0	1		
Ristana's family abroad		15	34	2	0	1		
Ristana's family in Tetovo Villages ..		136	428	68	1(+1?)	6		
Total for III		321	981	161	3 (+1?)	15		163±11
DISTRICT IV								
Plitvice Jezere, Villages	Orthodox Slavs	11	41	7	0	1		
Karlovac, Villages		2	11	5	0	0		
Travnik, Villages		38	161	35	0	2		
Sarajevo, Plain Villages		12	45	5	0	1		
Sarajevo, Mountain Villages		15	58	8	0	0		
Total for IV		78	316	60	0	4		190±20

TABLE V—*continued*

District	Race and Religion	Total Married Women	Total Children	Number of Children Died 0–1 Year	Number of Married Women Died in Childbirth	Number of Married Women Died from all Causes	Average Size of Family	Infant Mortality with Standard Errors
DISTRICT V								
Totals	Orthodox Slavs	4	12	0	0	0		
DISTRICT VI								
Peć, Villages	Orthodox Slavs	39	119	6	0	0		
Montenegro, Villages		62	174	11	0	8		
Podgorica, Villages		1	3	0	0	0		
Total for VI		102	296	17	0	8		57±21
Total for all Orthodox Slavs in all districts	(*I–VI*)	1,365	3,980	586	10 (+2?)	73	2·9	147±6
(2) **DISTRICT IV**								
Travnik, Villages	Roman Catholic Slavs	2	8	1	0	0		
Sarajevo, Plain Villages		2	8	0	0	0		
Sarajevo, Mountain Villages		3	8	0	0	0		
Karlovac, Villages..		2	11	5	0	0		

DISTRICT V								
Split, Villages	Roman Catholic	9	25	2	0	0		
Dubrovnik, Villages	Slavs	24	79	10	1	1		
Kotor, Villages		16	35	5	0	0		
Total of all Roman Catholic Slavs in all districts (I–VI) ..		58	174	23	1	1	3·0	132±27
(3) DISTRICT II								
Novi Pazar, Villages	Moslem Slavs	3	7	0	0	0		
Tutin, Villages		4	12	0	0	1		
Prizren, Mountain Villages		15	47	9	0	1		
DISTRICT IV								
Travnik, Villages	Moslem Slavs	30	134	39	3	4		
Sarajevo, Mountain Villages		11	54	10	0	3		
DISTRICT VI								
Peć, Villages	Moslem Slavs	12	34	1	0	1		
Total for all Moslem Slavs in all districts (I–VI)		75	288	59	3	9	3·9	205±20
Total for all Slavs, irrespective of religion, in all districts (I–VI)		1,498	4,442	468	14	83	3·0	150±5

TABLE V—*continued*

District	Race and Religion	Total Married Women	Total Children	Number of Children Died 0–1 Year	Number of Married Women Died in Childbirth	Number of Married Women Died from all Causes	Average Size of Family	Infant Mortality with Standard Errors
(5) DISTRICT II								
Prizren, Plain Villages	Roman Catholic Albanians	12	40	12	0	0		
DISTRICT VI								
Peć Villages		2	7	0	0	0		
Total for all Roman Catholic Albanians in all districts (I–VI)		14	47	12	0	0		
(6) DISTRICT II								
Prizren, Plain Villages	Moslem Albanians	2	2	2	0	0		
DISTRICT III								
Tetovo, Villages	Moslem Albanians	4	9	1	0	1		
DISTRICT VI								
Peć, Villages	Moslem Albanians	4	8	1	0	0		
Streoc		4	11	1	0	0		
Total for all Moslem Albanians in all districts (I–VI) ..		14	30	5	0	1		
Total for all Albanians, irrespective of religion, in all districts, (I–VI)		28	77	17	0	1		221 ± 47

TABLE VI

(C) INFANT AND MATERNAL MORTALITY IN CERTAIN TOWNS IN JUGOSLAVIA: FOR INCOMPLETE FAMILIES—MOTHERS BORN AFTER 1890

District	Race and Religion	Total Married Women	Total Children	Number of Children Died 0–1 Year	Number of Married Women Died in Childbirth	Number of Married Women Died from all Causes	Average Size of Family	Infant Mortality with Standard Errors
(1) DISTRICT I								
Pirot	Orthodox Slavs	3	9	6	0	0		
DISTRICT II								
Sjenica	Orthodox Slavs	24	73	5	0	2		
Priština Urošerac, etc.		96	339	53	1	7		
Prizren		5	10	0	0	1		
Novi Pazar		37	100	9	1	3		
Total of II		162	522	67	2	13		128±15
DISTRICT III								
Debar	Orthodox Slavs	3	22	6	0	0		
Kavedar		11	41	6	0	0		
Kruševo		3	14	3	0	0		
Ristana's family in Tetovo, Skoplje, etc.		43	132	19	0 (+1?)	4		
Ohrid		3	9	1	0	1		
Tetovo		33	93	6	0	3		
Total of III		96	311	41	0 (+1?)	8		132±19
DISTRICT IV								
Sarajevo	Orthodox Slavs	3	7	0	0	0		
Trebinje		3	9	1	0	0		
Total of IV		6	16	1	0	0		
Total of all Orthodox Slavs in all districts (I–VI)		267	858	115	2 (+1?)	21		138±12

TABLE VI—*continued*

District	Race and Religion	Total Married Women	Total Children	Number of Children Died 0–1 Year	Number of Married Women Died in Childbirth	Number of Married Women Died from all Causes	Average Size of Family	Infant Mortality with ± Standard Errors
(2) DISTRICT II								
Novi Pazar	Moslem Slavs	7	33	14	0	0		
DISTRICT IV								
Trebinje	Moslem Slavs	4	10	2	0	0		
Total of all Moslem Slavs in all districts (I–VI)		11	43	16	0	0		
Total of all Slavs, irrespective of religion, in all districts (I–VI)		278	901	131	2 (+1?)	21	3·3	145±12
(3) DISTRICT II								
Janjevo	Roman Catholic Albanians	21	50	5	0	3		
Total of all Roman Catholic Albanians in all districts (I–VI) ..		21	50	5	0	3		
(4) DISTRICT II								
Priština	Orthodox Gipsies	22	63	3	0	2		
DISTRICT IV								
Trebinje	Moslem Gipsies	9	25	3	0	0		
Total of all Gipsies, irrespective of religion, in all districts I–VI)		31	88	6	0	2		
DISTRICT II								
Priština .. .. *Total*	Spanish Jews	9	30	1	0 (+1?)	1		

TABLE VII

TO SHOW THE INFANT MORTALITY IN CERTAIN VILLAGES AND TOWNS OF JUGOSLAVIA, WHEN THE COMPLETED FAMILIES (GROUP A), THE ALMOST COMPLETED FAMILIES (GROUP B), AND THE INCOMPLETE FAMILIES (GROUP C) ARE COMBINED

(*See Tables I–VI*)

District	Race and Religion	Groups of Families, (A, B, or C)	Total Deliveries	Number of Children Died in Infancy (0–1 Year)	Infant Mortality with Standard Errors
All towns and villages in all six districts	Orthodox and Roman Catholic Slavs	A	4,991	916	184±5
All towns and villages in all districts	Orthodox and Roman Catholic Slavs	B	960	153	159±12
Totals	Orthodox and Roman Catholic Slavs	A+B	5,951	1,069	180±5
All towns and villages in all districts of groups A and B	All Moslem Slavs A and B	A+B	238	56	235
All Slavs in Groups A and B, irrespective of religion, in all towns and villages in all districts		A+B	6,189	1,125	182±5
All Albanians, irrespective of religion, in Groups A and B in towns and villages in all districts		A+B	160	25	156±29

TABLE VII—*continued*

District	Race and Religion	Groups of Families (A, B, or C)	Total Deliveries	Number of Children Died in Infancy (0–1 Year)	Infant Mortality Standard Errors
All towns and villages in all districts	All Orthodox and Roman Catholic Slavs in C	C	5,002	718	144±5
All towns and villages in all districts	All Moslem Slavs in C	C	331	75	227
All Slavs, irrespective of religion, in all districts, towns, and villages		C	5,333	793	149±5
All Albanians, irrespective of religion, in all towns and villages in all districts ..		C	127	22	173±34
All Orthodox and Roman Catholic Slavs in all towns and villages in all six districts		A, B, C	10,953	1,787	163±4
All Slavs, irrespective of religion, in all towns and villages in all districts		A, B, C	11,522	1,918	166±3

Table VIII

MATERNAL MORTALITY FIGURES FOR CERTAIN VILLAGES AND TOWNS IN JUGOSLAVIA*

(A = Completed Families—mothers born 1800–1884. B = Almost Completed Families—mothers born 1885–1889. C = Incomplete Families—mothers born 1890 onwards)

All Places in all Six Districts	Groups of all Races and Religions in these Six Districts	Total Deliveries	Total Deaths of Married Women in Childbirth	Total Doubtful Cases of Deaths in Childbirth	Maternal Mortality (per 1,000 Full-term, Live, and Still-Births)	Maternal Mortality (per 1,000 Full-term, Live, and Still-Births) with Doubtful Cases included
All villages and all towns	A and B combined	{ 4,884 1,525	16 5	5 2		
Totals	A and B combined	6,409	21	7	3·3±0·06†	4·4±0·06†
All villages and all towns	C	{ 4,775 1,116	14 2	2 2		
Totals	C	5,891	16	4	2·7±0·06	3·4±0·06

* These numbers of women and children belong to the same village and town families, and are the same as those used in Tables I–VII for infant mortality and size of family.

† Standard error.

Table IX

GIVES THE TOTAL SETS OF TWINS AND TRIPLETS OCCURRING IN THE SAME TOWN AND VILLAGE FAMILIES IN THE VARIOUS DISTRICTS OF JUGOSLAVIA, FOR COMPLETE FAMILIES OF GROUP A, ALMOST COMPLETE FAMILIES OF GROUP B, AND INCOMPLETE FAMILIES OF GROUP C.

(See Tables I–IV, where all details are given.)

District	Group A Complete Families		Group B Almost Complete Families		Group C Incomplete Families	
	Villages	Towns	Villages	Towns	Villages	Towns
(1) Orthodox Serbians						
I	15		2		12 + 1 triplets	10
II	5 + 1 triplets	2			14	
III	21	9 + 1 triplets	4 + 2 triplets	2	9	3
IV	4				4	
V						
VI	2		2		4	
Totals for all districts ..	47 + 1 triplets	11 + 1 triplets	6 + 2 triplets	2	43 + 1 triplets	13
(2) Roman Catholic Slavs						
IV					1	
V	3		2		2	
Total for all districts ..	3	0	2	0	3	0

(3) Moslem Slavs

II						1
IV	1					
Totals for all districts ..	1	0	0	0	0	1

(4) Roman Catholic Albanians

II	2				1	
III						1
VI		1				
Totals for all districts ..	2	1	0	0	1	1

(5) Moslem Albanians

VI					2	
Totals for all districts ..	0	0	0	0	2	0
	1·2 per cent twin births,* taking together all races and religions in all villages and towns in all districts		1·2 per cent twin births,* taking together all races and religions in all villages and towns in all districts		1·1 per cent twin births,* taking together all races and religions in all villages and towns in all districts	

* Triplets omitted.

but for all districts together their infant mortality was 237. Taking all these Slavs of Group A in all districts together, irrespective of their religion, the infant mortality-rate was 181. (The number of births was over 4,000.)

Table II gives details of the completed town families of Group A, where the mothers were born between 1800–1884. Here(1) among Serbs the infant mortality of only two districts is given; that of II and III, with respectively 216 and 183 deaths per thousand. District II again shows a higher death-rate. When all districts were taken together the rate was 204 per 1,000. (The total births over 1,000.)

The infant mortality for (2) Roman Catholic Albanians has also been calculated for all the districts together, and was found to be 173. For all gipsies, irrespective of their religion, the rate was 147. (But this was based on less than a hundred births.)

Table III gives particulars of the almost completed village families of Group B, where the mothers were born between the years 1885–89. Here (1) among the Orthodox Slavs the highest infant mortality of 210 was again found in District II. (But the number of births was under 200.) The lowest infant death-rate of 133 per 1,000 occurred in District III, while for all these Serbian village families in all districts together the rate was 154 per 1,000. (The total births about 700.)

The infant mortality among (2) Roman Catholic Slavs in all villages in all districts was 122. (But this was based on under 100 births.) For (3) the Moslem Slavs, however, the numbers were not sufficient for separate calculation. But, taking all the Slavs in all country districts together, irrespective of their religion, the infant mortality was 153. (The total births was nearly 800.)

Table IV gives details of the almost completed families (Group B) living in towns, where for all Serbian families the infant deaths were 194 per 1,000, and, taking all Slavs together, irrespective of religion, 190 per 1,000. The numbers of Albanians and gipsies were too small for separate calculations.

Table V gives particulars of incomplete village families (Group C), where the mothers were born in 1890 or later. Here,(1) among the Serbs, the highest infant mortality of 190 occurred in District IV, and the lowest of 57 in District VI. When all Serbs in all six districts were considered together, the infant deaths were 147 per 1,000. (The total births was nearly 4,000.)

When (2) all the Croatian village families were taken together,

the death-rate of infants amounted to 132 per 1,000. All the Moslem Slavs, also, were taken together, and gave a rate of 205 per 1,000. All Slavs, irrespective of their religion, had an infant mortality of 150. (The total births was over 4,000.)

The infant mortality among Albanians, considered irrespective of their religion, was 221. (But this was based on less than 100 cases.)

Table VI gives particulars of the town families of Group C, where the mothers were born in 1890 or later. Here, for (1) Orthodox Slavs, the infant mortality was calculated for two districts only: District II with a rate of 128 per 1,000, and District III with 132; while for all the Orthodox Slavs in all town districts of Group C the figure was 138. But when all the town Slavs of Group C were taken together, irrespective of religion, the infant mortality was 145.

Table VII gives the infant mortality in the various towns and villages of the six districts, when the completed families of Group A, and the almost completed families of Group B, are combined with each other, as well as with the incomplete families of Group C. The infant mortality of this last group has also been given separately. (For fuller details, *see Tables I–VI.*)

The infant mortality among all the Orthodox and Roman Catholic Slavs of the towns and villages in the six districts in Group A was found to be 184, and that of similar families in Group B 159, while both combined together gave an infant death-rate of 180 per 1,000. But the figure is higher among the Moslem Slavs of these two groups, being 235 per 1,000. When, however, all Slavs, irrespective of their religion, in the town and country districts of Groups A and B were taken together, the infant mortality was 182 (based on over six thousand births). For all the Albanians of Groups A and B irrespective of their religion, the figure was 156. (But this was based on under two hundred births.)

In Group C, when all the Orthodox and Roman Catholic Slavs living in all villages and towns of all six districts were taken together, the infant mortality was 144 (based on over five thousand births); while that of all the Moslem Slavs in all districts was 227. This again, like that of all the Moslem Slavs of Groups A and B, was higher than among all the Christian Slavs of these groups. The figure, however, was 149, when the calculations were made for all Slavs in Group C, irrespective of their religion, while

for all town and country Slav families in all the three groups A, B, and C, the infant death-rate was found to be 166 per 1,000, and for all Albanians in these three groups the rate was 173 per 1,000.

Table VIII gives the maternal mortality per full-term live and still-births (omitting miscarriages and abortions) for the completed and incomplete families of the three groups, A, B, and C, in all the six districts respectively. All races and religions have also been taken together, the numbers were not sufficiently large to allow of separate maternal mortality calculations. The completed families of Group A, and the almost completed families of Group B, in all villages and towns in the six districts, have been combined (columns 1 and 2). This brings the numbers of deliveries of the village and town women to a total of 4,884 and 1,525 respectively (column 3), and the total numbers of mothers dying in childbirth to 16 (+ 5 doubtful cases) in villages, and 5 (+ 2 doubtful cases) in towns (columns 4 and 5). Combining these village and town totals makes 6,409 deliveries and 21 (+ 7 doubtful cases) deaths of women in childbirth. This gave a maternal mortality of 3·3, or 4·4 if the doubtful cases are included (columns 6 and 7).

The maternal mortality was reckoned separately for all the incomplete families of Group C. Here the total number of deliveries of the village and town women was 4,775 and 116 respectively; the maternal deaths in villages were 14 (+ 2 doubtful cases), and in towns 2 (+ 2 doubtful cases), making a total of 5,891 deliveries, and 16 (+ 4 doubtful cases) deaths of women in childbed. This gave a maternal mortality-rate of 2·7 per 1,000, or 3·4 if the doubtful cases are included.

The average size of family has also been found for the three groups A, B, and C when the numbers were sufficiently large. (*Tables I–VI, column* 8.) This was, however, based on fertile marriages only, because, the tables being originally made to discuss infant and maternal mortality, childless marriages were omitted as a matter of course.*

Among the completed village families of Group A the average size of family of 6·8 among the Moslem Slavs was higher than among the Roman Catholic or Orthodox Slavs, where it was 6·7 and 5·6 respectively. While for all Slavs together, irrespective of

* Fuller details of size of family in various towns and villages in Jugoslavia have been given in a previous article in *Population, loc. cit.*

their religion, the figure was 5·8. In the corresponding town families of Group A the average size of family of 6·0 for all Slavs, irrespective of their religion, was slightly higher than in villages. For the Roman Catholic Albanians it was still higher, viz. 8·4, but the numbers were much fewer. (*Tables I–II.*)

The almost completed village families of Group B had an average size of family of 4·6 for all Slavs, irrespective of their religion, which for similar town families was practically the same, being 4·5. (*Tables II–III.*) Among the incomplete village families of Group C the Moslem Slavs again gave a higher average of children per married couple, with 3·9 against 3·0, and 2·9 for Roman Catholic and Orthodox Slavs respectively. The figure for all the Slavs, irrespective of their religion, was 3·0. In towns the families were slightly larger, with an average of 3·3 for all Slavs, whatever their religion, as well as for the Orthodox Slavs.

Table IX gives the numbers of twins and triplets born to the women of the three groups A, B, and C, in the towns and villages of the various districts I–VI. (Details given in *Tables I–VII.*) 1·2 per cent. twin births were recorded for the complete families of Group A, when all races and religions of all the town and village families in all districts were taken together. This same percentage of 1·2 was found for the almost complete families of Group B, when all were similarly taken together. But 1·1 per cent. twin births occurred in the incomplete families of Group C, when the families of all races and religions in the villages and towns of all districts were considered together. In these calculations triplets were omitted.

Conclusions. (1)The infant mortality among all Slavs, irrespective of their religion, is lower in villages than in towns in Groups A and B—complete and almost complete families—but is higher in the incomplete families of Group C. The differences, however, are not statistically significant. But among Orthodox Slavs only, the infant mortality of the complete families of Group A is higher in towns by twice the standard error. (2)Again, among Orthodox Slavs the Macedonians (District III) do not differ as regards infant mortality from their Orthodox fellow Slavs in the other districts. (3)The infant mortality among the Moslem Slavs or Bosnijaks is higher in all the groups A, B, and C when compared with that of the combined Orthodox and Roman Catholic Slavs. When Groups A and B are considered together, then the difference is 2·2 times the standard error. But among the incomplete Moslem

Slav families of Group C in villages and towns, the infant mortality is definitely higher than among the corresponding incomplete families of Roman Catholic and Orthodox Slavs. This seems to be due to a decrease in the deaths of infants among the Christian Slavs of Group C within the last twenty-five or thirty years. No corresponding lowering of the death-rate of infants among Moslems has taken place, owing probably to their disregard of the restrictions of Public Health, and the very early age at which girls are married, combined with their fatalistic creed. (4)Again, a statistically significant decrease in infant mortality is noticeable among those born at a later date. It must, however, be remembered that these Group C families are incomplete, with an excess of earlier-born children; so that if the death-rate of later-born children is higher, this would account for some decrease. On the other hand, if deaths are more frequent among the first-born, this would operate in the opposite direction. (5)The infant mortality among Albanian families is not statistically different from that among the Slavs. (6)The difference between the size of village and town families is not significant. (7)The difference between the maternal mortality of the combined completed families of Group A and the almost complete families of Group B and that of the incomplete families of Group C is statistically significant, although in the latter group the possible effect of dealing with incomplete families must be kept in mind. But this maternal mortality of 3·3 (or 4·4 if the doubtful cases are included) for Groups A and B, and of 2·7 (or 3·4 if the doubtful cases are included) for Group C is very low, especially when the rough-and-ready conditions of childbirth are recollected. Yet this condition would be expected for a hardy, virile, and intelligent people who have a hard environment to contend with, and, in villages at any rate, with none of the modern aids of the social services, and among whom the death-rate of infants is comparatively high.*

* The maternal mortality in England and Wales in 1933 was 4·5, and in 1930 5·4. The infant mortality in 1933 was 64 per thousand; but as recently as 1900 and 1910 the death-rate of infants in England and Wales was 154 and 165 per thousand: not so vastly different from these villages and towns of Jugoslavia. And I have seen it stated that, in England in the eighteenth century, deaths of women in childbirth were as high as 15 or 16 per thousand.

IS ENFORCED WIDOWHOOD THE *ONLY* CAUSE OF THE SLOWER GROWTH OF THE BENGALEE HINDUS?

By JATINDRA MOHAN DATTA, M.Sc., B.L.

(The question dealt with here is of vital importance to the Bengalee Hindus as a community. Possibly in my argument there are some hidden fallacies, but I have not been able to find them. If anyone would kindly point them out, the writer would remain grateful to him. —J. M. D.)

THE Swedish statistician Sündbärg, in an address before the International Statistical Institute in 1899, pointed out that in all Western countries the number of persons aged "15–50" is uniformly about half the total population, and that any variations which occur in the age constitution take place in the other two main groups—"0–15" and "50 *and over.*" Where the population is growing, the number in the former group is much greater than the latter; but where it is stationary the numbers in the two groups approach equality. The mortality in these two groups, he says, is far greater than in the intermediate one, but it is about the same in both cases. Consequently variations in their relative size do not affect the total mortality, which is thus independent of the age-distribution.

Sündbärg divided populations into *three* types: Progressive, Stationary, and Regressive, if they conformed to the following age-categories:

Type	Proportion per 1,000 of the Population of Different Types in certain Age-Periods		
	0–15	15–50	50 and Over
Progressive	400	500	100
Stationary	330	500	170
Regressive	200	500	300

Sündbärg's observation that the age-group "15–50" contains about half the total population holds good in the case of India taken as a whole, as the following figures taken from the Census Reports will show:

INDIA

PROPORTION PER 10,000 IN EACH CATEGORY

Year	Males			Females		
	0–15	15–50	50 and Over	0–15	15–50	50 and Over
1881	3,964	4,964	1,072	3,808	4,980	1,212
1891	3,976	4,972	1,052	3,869	4,962	1,169
1901	3,912	5,008	1,080	3,803	5,021	1,176
1911	3,875	5,031	1,094	3,813	5,025	1,162
1921	3,918	4,956	1,126	3,891	4,946	1,163
1931	3,984	5,071	945	3,999	5,050	951

Having regard to the fact that the widows among the Hindus, who form about 68 per cent. of the total Indian population, do not re-marry and are thus biologically dead to the community, the Indian population as a whole may be said to be just "Progressive" of Sündbärg's three categories.

Let us now deal more particularly with Bengal, and see whether Sündbärg's observations hold good in the case of Bengal too. As the figures earlier than 1911 are often combined with those of Bihar and Orissa, and as it is not an easy task to disentangle the relevant figures, we shall confine ourselves to figures since 1911. The relevant figures are shown below:

BENGAL

PROPORTION PER 10,000 IN EACH CATEGORY

Year	Males			Females		
	0–15	15–50	50 and Over	0–15	15–50	50 and Over
1911	4,061	4,987	952	4,057	4,946	997
1921	4,000	5,081	919	4,006	5,069	925
1931	4,042	5,125	833	4,108	5,104	788

PROPORTION OF FEMALES TO 1,000 MALES

1911	1921	1931
945	932	924

It will be realized that Sündbärg's observations hold good in the case of Bengal too. The population of Bengal, if anything, is

progressive and not stationary. If we analyse the Bengal figures by religions for the two major communities, viz. the Muhammadans, who form 54·44 per cent. of the total population, and the Hindus, who form 43·48 per cent., we get:

BENGAL MUHAMMADANS

PROPORTION PER 10,000 IN EACH CATEGORY

Year	Males			Females		
	0–15	15–50	50 and Over	0–15	15–50	50 and Over
1911	4,407	4,716	877	4,356	4,790	854
1921	4,322	4,820	858	4,290	4,913	797
1931	4,333	4,900	767	4,380	4,956	664

PROPORTION OF FEMALES TO 1,000 MALES

1911	1921	1931
949	945	936

BENGAL HINDUS

PROPORTION PER 10,000 IN EACH CATEGORY

Year	Males			Females		
	0–15	15–50	50 and Over	0–15	15–50	50 and Over
1911	3,662	5,299	1,039	3,692	5,134	1,174
1921	3,609	5,396	995	3,643	5,267	1,090
1931	3,682	5,406	912	3,764	5,289	947

PROPORTION OF FEMALES TO 1,000 MALES

1911	1921	1931
931	916	908

From the above figures it will appear that the Hindus of Bengal fall in the Stationary category of Sündbärg, while the Muhammadans may be said to fall in the Progressive category.

Ordinarily the proportion of children shows whether the Community is progressive or not, while that of old persons is some guide to its longevity; and where the proportion of persons in the prime of life is relatively high, a comparatively rapid growth of

population in the immediate future may confidently be anticipated. The proportion of persons in the prime of life, i.e. in the age-category "15–50," is higher amongst the Hindus than amongst the Muhammadans; but the growth of the Bengal Hindus has always been slower than that of the Bengal Muhammadans during the last 60 years. The following table showing the respective variations of the Hindus and the Muhammadans during each inter-censal period will be most instructive.

PERCENTAGE VARIATION DURING EACH INTER-CENSAL PERIOD

(+ Increase, — Decrease)

Year	Muhammadans	Hindus
1881–1891	+ 9·7	+ 5·0
1891–1901	+ 8·8	+ 6·2
1901–1911	+ 10·4	+ 3·9
1911–1921	+ 5·2	− 0·7
1921–1931	+ 9·1	+ 6·7
Average variation during a decade	+ 8·6	+ 4·2

The relative excess in decennial increase over the Hindus is in favour of the Muhammadans; and it is (8·6–4·2) = 4·4 per cent.

It will be seen that the Hindus have increased, excepting for one decade; but their growth has been twice as slow as that of the Muhammadans, in spite of the proportion of prime men, i.e. those who are between 15 and 50 being greater in the proportion of 5,367 : 4,812 amongst males, and of 5,230 : 4,886 amongst females than amongst the Muhammadans. In fact, the proportion of prime men and women amongst the Hindus is 8 per cent. greater than that amongst the Muhammadans.

For this apparent anomaly in the relative growth of the two communities, two causes suggest themselves: (1) restriction of widow re-marriage amongst the Hindus, and (2) greater prevalence of malaria in those regions where the Hindus predominate.

The respective numbers of married females aged "15 to 40," i.e. of the reproductive age period per 100 females of all marital conditions, whether unmarried, married, or widowed, and of all

ages amongst the Hindus and the Muhammadans are shown below:

	1911	1921	1931
Muslim	35	36	37
Hindu	32	33	34
Excess of married females amongst Muslims over Hindus	3	3	3

The relative excess of married females, amounting to some 3 per cent., thus mainly accounts for the relative excess in the decennial increase among the Muhammadans. If we add to it the effect of the greater proportion of females amongst the Muhammadans, we believe the two together fully and wholly accounts for the greater increase of the Muhammadans.

The proportion of females per 1,000 males among the two communities have been:

	1881	1891	1901	1911	1921	1931
Muslim	988	977	968	949	945	936
Hindu	999	969	951	931	916	908
Excess (+) or defect (—) of females amongst Muslims	—11	+8	+17	+18	+29	+18

The average excess of females amongst the Muhammadans over the Hindus works out to 1·5 per cent. Thus the excess of married females, and the excess of females proportional to males, account for 3 per cent. + 1·5 per cent. = 4·5 per cent. of the greater increase, while the average greater increase is only 4·4 per cent. Any possible effect due to malaria thus seems to be of very little importance.

1. Lorimer (Frank) and Osborn (Frederick). *Dynamics of Population.* The Macmillan Co., New York, 1934. Pp. xiii + 460.
2. Penrose (E. P.). *Population Theories and Their Application.* Food Research Institute, Stanford University, California. 1934. Pp. xiv+347.
3. Chiao (Chi-Ming). *A Study of the Chinese Population.* Reprinted from the *Millbank Memorial Fund Quarterly Bulletin.* New York, 1934. Pp. iv + 56.
4. Sarkar (Prof. Benoy Kumar). *Comparative Birth, Death and Growth-Rates.* Reprinted from the *Journal of the Indian Medical Association.* Calcutta 1932. Pp. 36.
5. Burgdoerfer (Friedrich). *Der Kampf um die Wiedergeburt des Volkes und seine Erfolgsaussichten.* Sonderdruck aus *Archiv fur Bevolkerunswissenschaft und Bevolkerungspolitik,* 1934. Pp. 279–289.
6. Cohn (Selig Siegmund). *Die Theorie des Bevolkerungsoptimums.* Inaugural-Dissertation. Marburg, 1934. Pp. xv + 169.

The first two books are important contributions to the sociology of population; and although one deals exclusively with the United States of America and the other with Japan, in a sense they supplement each other. For while Lorimer and Osborn are primarily concerned with the facts and the more recent investigations bearing on population movements and only secondarily with theory, Penrose's main aim is to fuse the interpretations that derive from all the accumulated observations into theories and hypotheses that have a general application. He rightly points out that it is the inadequacy of existing theories just as much as the inadequacy of available facts which retards progress in the study of population problems, and that to a large extent the direction of our search for facts should be determined by the nature of our theories.

Dynamics of Population falls into four parts. The first part deals with population growth as a whole and with population trends in relation to the size of the community, race, national origin, occupational and economic status. The second part presents and analyses the data relating to group variations in physical and intellectual development. The third part discusses the social and biological significance of differential fertility. And the final section considers the medical, economic, and social factors affecting fertility, and the possibilities of controlling population movements in the interests of society. In each section, after skilfully presenting the relevant evidence, the authors summarize the main conclusions that follow.

It is only possible to select a few of these for discussion here. It is shown that in the United States the period of rapid natural increase is coming to an end; that some groups are increasing more quickly than others; that the more permanent factors tending to cause the varying reproduction rates are predominantly social and that the main cause in the declining birth-rate has been voluntary limitation. The authors convincingly argue that since the factors bringing about differential fertility are predominantly social they are subject to social control, and that the only way to check the declining birth-rate is to ensure a state of economic security to the majority of the people that will make possible early marriage and the raising of a family.

There is an illuminating analysis of the problem of differential fertility. From a biological point of view the authors believe—they admit that the question is not yet finally settled—that differential fertility as between the occupational groups is leading to a gradual decline in the average hereditary capacity of the population. This conclusion, although it is cautiously stated, is somewhat surprising since the authors are highly

critical of the alleged significant differences between large regional groups, between farm and city people, and between national and racial groups. From a social and cultural point of view the significance of differential fertility cannot be denied. It is evident that the more fertile groups are recruited from areas with low standards of living and inferior educational resources, thereby counteracting higher standards in other parts of the country. Moreover differential fertility, especially between the urban and rural groups, which is not likely to disappear or become negligible in the near future, is leading to an accumulation of surplus population in agricultural areas with limited natural resources and creating economic problems of the first magnitude.

The authors are to be congratulated on an excellent and indispensable work. Its value to the student is enhanced by detailed appendices of statistical material, a glossary of terms, a forty-page bibliography, and an index of names and subjects.

Population Theories and Their Application begins with a number of penetrating criticisms of the Malthusian and optimum theories. The latter are obviously mistaken in thinking there is one optimum, whereas there are a number of optima "according to the ends or purposes in view and the criteria agreed on in different circumstances and by different students." The former theories have been vitiated owing to inventions, technical improvements, and the increase in productive capacity. But, Dr. Penrose goes on to argue, the dismissal of over-population does not mean that there are no serious population problems. On the contrary, such problems exist, and will always exist, because of the natural disparity between the distribution of population and natural resources. Because of this fact, they will be present even if there were no shortage of natural resources, inventive capacity, and technical skill in the world as a whole. The essence of the population problem according to Dr. Penrose is how to distribute the factors and sub-factors of production and their substitutes, such as movements of commodities, international trade, capital, mobility, and supply of entrepreneurs, labour, and technicians, such as to make possible the best utilization of the increase in productive capacity.

In the light of this analysis, the population problem in Japan is only temporary, believes Dr. Penrose. It will disappear, as will also its main feature, agricultural over-population, with extended industrialization and increased foreign trade (for if Japanese products are taken abroad, the Japanese themselves need not emigrate). The Japanese birth-rate need not alarm us, and Dr. Penrose shows how mistaken is the belief that the Japanese are endowed with a naturally high fecundity which leads to over-population. In fact, their present birth-rate of 32 per 1,000 was England's in 1880 and Germany's as late as 1904. It is falling, and will fall still more with the spread of birth-control. To attribute such imperialist ventures as the occupation of Manchuria, the author rightly argues is to simplify unduly the process of social causation. He does not believe that the "mainsprings of violent social conflicts" lie in population pressure. "It is not the niggardliness of nature but the irrationality of man that stands in the way of a working solution to the population problems that arise out of the inevitable disparity of population and the distribution of natural resources."

There are two points in connection with this discussion that one would have liked Dr. Penrose to discuss. What if tariff walls and preferential trade agreements put obstacles in the way of Japanese exports? Is not this tantamount to admitting, on the author's own showing, that Japan

is over-populated. And again, even if it were possible to distribute population in accordance with natural resources (and this may be not merely a problem in economics and free-trade, but of a whole economic system and imperialism), would not this involve a lowering of the average of income or welfare in other countries. Japan would gain but not England or America. The net advantages, it is true, may be greater in that it would eliminate many economic and political sources of conflict. In view of the present-day interest politicians are manifesting into the possibilities of distributing more equitably the world's natural resources this stimulating work deserves close study.

The situation in China would not seem to be very much different from that in Japan if one could apply Dr. Penrose's analysis to Mr. Chi-Ming Chiao's pamphlet. The author is inclined to forget that a birth-rate of 36·6, and the Chinese family's mean size of 5·25, was characteristic of the industrial nations not so very long ago. The marriage-rate does not appear to be higher than in most countries, and the age at marriage is also fairly high, being 20·19 years for men, and 18·82 for women. It would be idle, however, to deny the significance of an annual increase of 4–5 millions, but it does not follow, as the author assumes, that war, pestilence, and famine are the result of over-population.

India, according to Professor Sarkar's able study, is moving westwards in its demography. But even if she "should be in a position during the next generation to maintain an ascending growth curve in tune with the rising tide of industrialization, she would be but following, as in other phases of economico-cultural development, the pioneers from 1840 to 1901." The pioneers are, of course, England, Belgium, Germany, etc.

A desire to emulate the birth-rates of India and China is evident in Dr. Burgdoerfer's propagandist article. On the basis of a few figures and a few years' experience, the author believes that National Socialism under the leadership of Hitler has checked the falling birth-rate.

In all theories of over-population certain economic criteria have been adopted and certain "optima" assumed. What these are and how they developed is exhaustively treated by Dr. Cohn in his dissertation. He begins with Malthus, Mill, and List, and then considers Cannan and his school—Dalton, Robbins, Ropke, and Plummer. Other names to come in for treatment are Carr-Saunders, A. B. Wolfe, Fairchild, Wicksell, von Mises, Julius Wolf, Losch, and Mombert. A final section is devoted to the opponents of the optimum theory—Beveridge, Bourdon, Gini, and Dupreel. It is interesting to note how much this concept has been modified since Cannan's exposition of it, and that the term "optimum" has no longer, and rightly, an absolute significance. It is now recognized that it is a purely relative term.

J. RUMNEY.

CHARLES (ENID). *The Twilight of Parenthood*. Watts & Co., 1934. Pp. 223. Price 7s. 6d.

In this "biological study of the decline in population growth" Dr. Enid Charles has brought together the results of recent researches, in various fields of inquiry, which throw light on the growth of population. She has not only synthesized the various aspects of the subject, but has also contributed a number of stimulating hypotheses, arguments, and comments. The result is a most fascinating book which deserves a wide public. Certain sections will, no doubt, provoke controversy and disagreement, but facts and arguments are advanced of vital interest and importance to every thinking man and woman. Although technical discussions are introduced,

the author has so arranged her material that these can easily be skipped by the "general reader."

Dr. Charles points out that in the past the problem of population has been stated in a form that concentrated mainly upon the search for human agencies which will prevent human beings from reproducing up to the limit of their capacity, and on social processes which regulate the occurrence of premature death. This, in her opinion, is too narrow a view. She considers the problem of population as an important department of "human ecology," and objects, in particular, to the tendency to classify it as a subsection of economics. At a later stage in her argument she stresses the influence of social factors on population changes, asserting that the latter are "symptoms of changes affecting the whole fabric of social life." For instance, it is erroneous, in her view, to attribute the recent decline in the birth-rate to the discovery of methods of birth-control. The history of birth-control shows that the "technical amenities" existed two centuries before a marked decline in the birth-rate started, so that, even if it be assumed that contraceptive practice has been the chief means of bringing about a declining fertility, "the explanation of how the decline began must be sought in the social conditions which prompted people to seek and use devices long since available."

The main thesis of the book is that the world as a whole is confronted with a real and imminent danger of under-population and race suicide, instead of with the old Malthusian bugbear of over-population. "What follows," she says, "will expose to view a situation which may truly be called the menace of under-population. It unfolds the spectre of a society which has lost the power to reproduce itself, is losing that power more and more, and must continue to dwindle unless fundamental readjustment occurs within the human ecological unit."

The argument is that certain new factors have recently emerged which have altered fundamentally the whole trend of population growth and the nature of the population problem, but that these changes have hitherto been disguised, and hence have escaped general recognition. The central fact is that, owing to man's increasing disposition and ability to regulate his own reproduction, the rate of reproduction in civilized countries has already declined to such an extent that—unless some drastic reaction occurs—it will inevitably lead to a progressive decline in population.

This fact has hitherto been concealed partly because mortality-rates have declined contemporaneously with birth-rates, and partly owing to the lack of a simple statistical technique for the measurement of population growth.

Hitherto the decline in mortality later has more than offset the decline in births, so that total population has continued to increase, but "no change in the risk of death short of a recipe for immortality can avert ultimate extinction if fertility remains at its present level." Moreover, this prospect is not remote. For instance, assuming no alteration in the present net reproduction-rate, "once a stable age composition has been reached" in England and Wales, the present population (forty millions) would be reduced to less than six millions in about two hundred years.

Dr. Charles also discusses a number of other factors affecting the population problem, including developments in the technique of food production, and the progress of research into the physiology or reproduction in both mammals and in man.

The conclusion follows that if the process of diminution is to be arrested, either the obstacles to parenthood must be reduced or else new incentives to the production of more children must be found. Dr. Charles proceeds

to explore the possibilities of social conduct which could alter the present trend, but appears to be rather pessimistic on the subject. She rightly treats with scorn the "trivial incentives" (e.g. the English allowance to the unemployed of 2s. per child) which have hitherto been adopted, most unsuccessfully, in certain countries. Such "remedies" merely offer some amelioration of the existing economic disadvantages attached to the production of children, and can hardly be expected to offer any positive inducement to parenthood. The causes of the lack of will to reproduce must be more deeply studied before adequate remedies can be suggested. Two factors—perhaps insufficiently stressed by Dr. Charles—may be particularly mentioned. Firstly, it is unlikely that any great enthusiasm for larger families can be engendered until the benefits of a larger population have been more clearly demonstrated. It is useless to say "the country wants more men," when it either wants cannon-fodder or else grudgingly offers an inadequate dole to a large proportion of the population. Whatever the real connection between unemployment and the size of the population may be, it is difficult to demonstrate the need for a larger population so long as widespread unemployment continues.

Secondly, the present inequality of distribution of opportunities and incomes appears to me a great deterrent to reproduction. At present an addition to the family not only reduces the standard of life of the rest, but also reduces the opportunities of all the children for securing education, training, and a good start in life. Only an approximate equalization of opportunities and the distribution of incomes with some regard to needs can remove the deterrent influence of such factors.

Remedies designed to meet difficulties of this type have not yet been attempted, except, perhaps, to some extent in Russia, and it is noteworthy that Russia is the one country where Dr. Charles sees signs of a different attitude towards the size of the family.

Space forbids discussion of the large number of highly controversial subjects raised by Dr. Charles, but one criticism must be advanced. Although Dr. Charles specifically refers only to the more industrialized countries of the world, which alone have sufficiently reliable vital statistics for detailed analysis, she implies that it is merely a matter of time before the more "backward" countries follow the example of the more "advanced." This attitude appears to be altogether too complacent, and ignores one vital aspect of the world population problem. I refer to the problems that will arise if for any considerable period the population of Asiatic countries increase their rates of reproduction (if merely by a decline in mortality), whilst the total population of industrialized countries declines. Dr. Charles states that the populations of China and India appear to be stationary. This is quite untrue of India, whose population increased by over thirty-three millions between 1921 and 1931, and it is at least possible that the population of China may increase during the next hundred years at a rate comparable with that of India during the last hundred years. The possibility of great differential fertility between Eastern and Western races, and the problems which may then arise, seem to me an important aspect of "human ecology."

VERA ANSTEY.

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